AVIATION WEEK

SEPT. 29, 1947

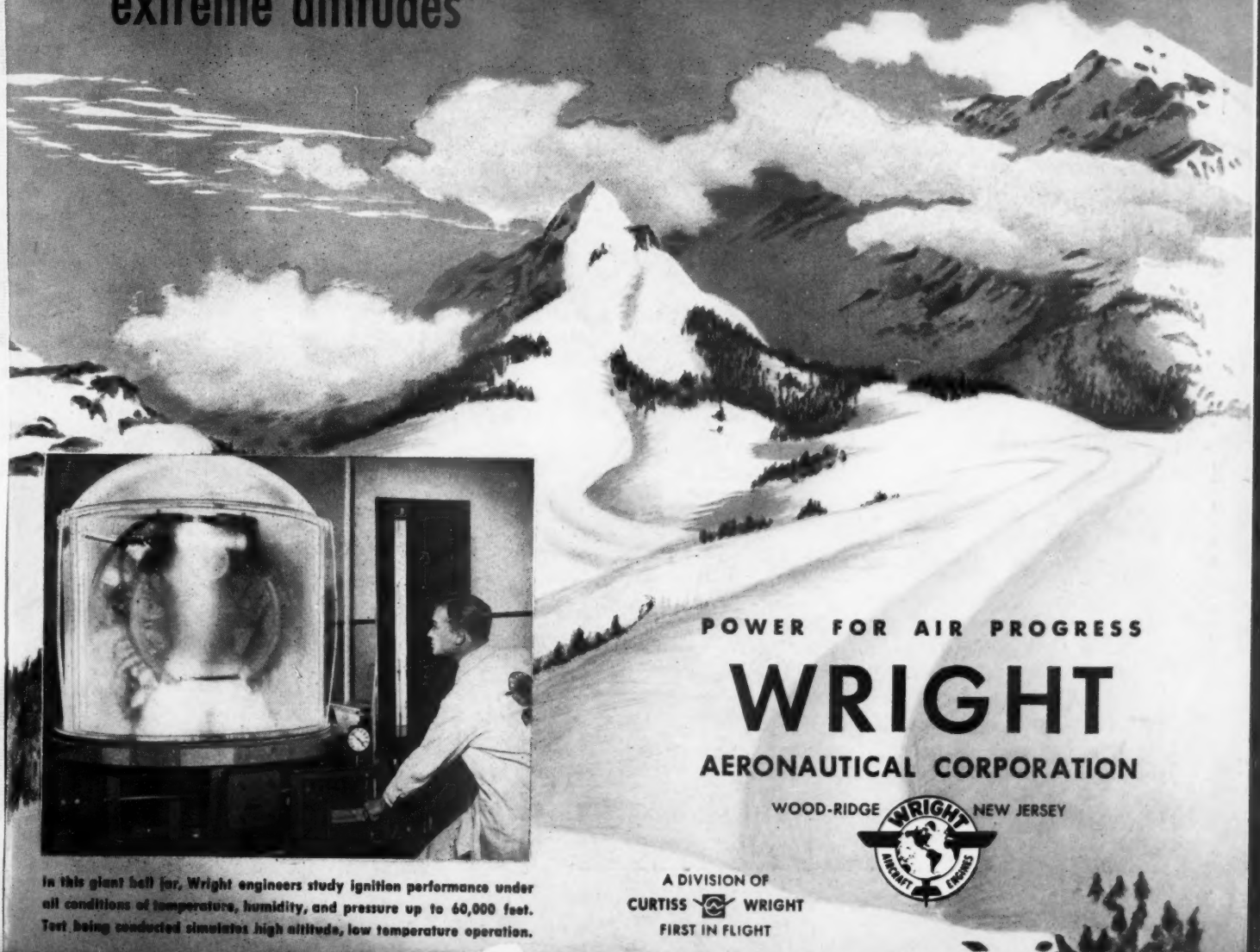
INCORPORATING AVIATION AND AVIATION NEWS

A McGRAW-HILL PUBLICATION

PUBLIC LIBRARY
DETROIT

Sea level Ignition performance at extreme altitudes

The low tension ignition system—now used in the Wright Cyclone 18BD—provides a more reliable ignition for "all-weather" flying and at all altitudes—from sea level to well beyond modern airplane operating altitudes. The system—engineered in collaboration with the Scintilla Magneto Division of the Bendix Aviation Corporation—confines high voltage circuits to very short leads between the transformer coils and the spark plugs. This means...better engine performance...less spark plug trouble ...less radio interference...easier maintenance...greater fuel economy in the cruising range with automatic spark advance.



In this giant bell jar, Wright engineers study ignition performance under all conditions of temperature, humidity, and pressure up to 60,000 feet. Test being conducted simulates high altitude, low temperature operation.

POWER FOR AIR PROGRESS

WRIGHT

AERONAUTICAL CORPORATION

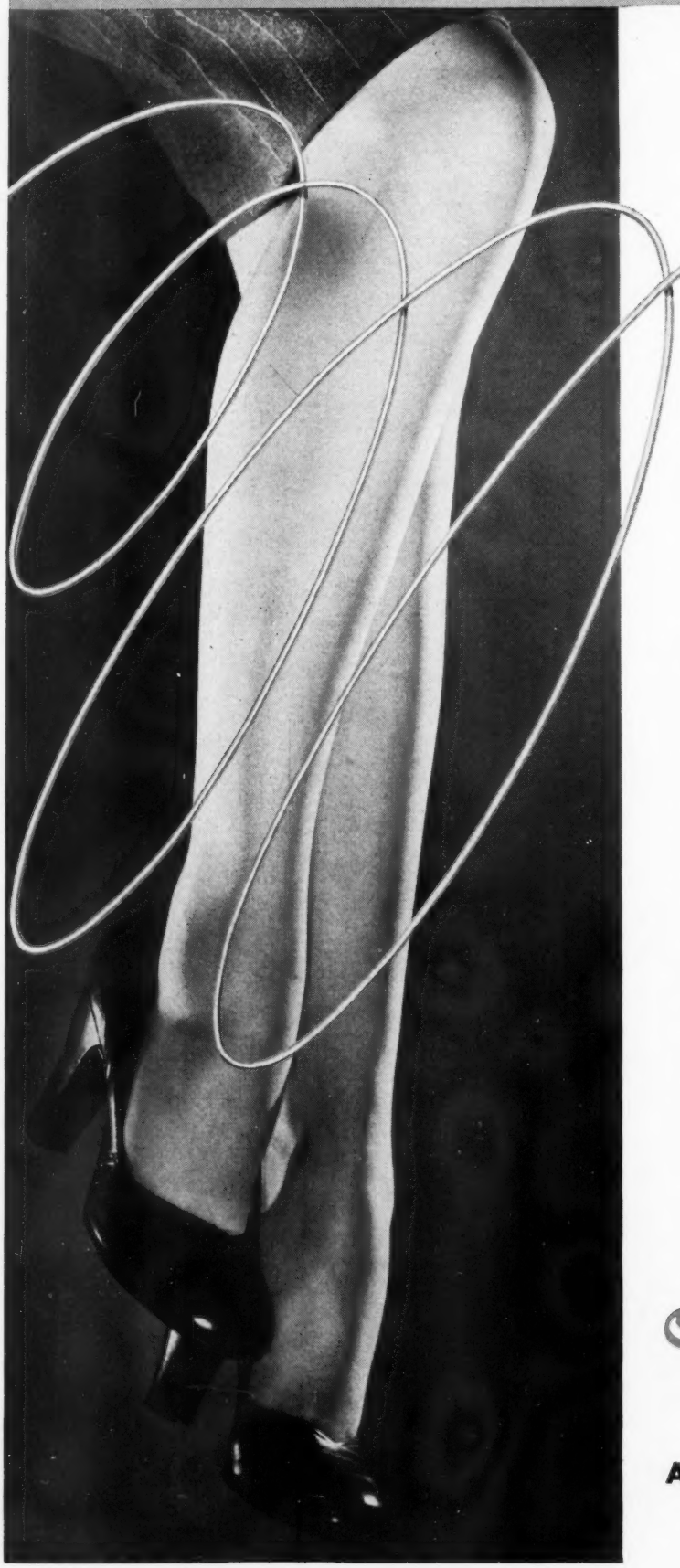
WOOD-RIDGE NEW JERSEY

A DIVISION OF CURTISS WRIGHT

FIRST IN FLIGHT

UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE



a modern new wire

This new aircraft wire, which is finished in nylon, is called "Neolay".

Neolay Aircraft Wire is smaller in diameter, lighter in weight than typical aircraft wire. The smooth finish and small diameter facilitate installation.

This new aircraft wire maintains thorough circuit integrity under extreme conditions of aircraft operation.

Neolay is supplied with either copper or aluminum conductors. It has a fibre glass wrap, a fibrous over-wrap, and heavy insulation of vulcanized synthetic latex. Over this, but inseparable from the insulation, is the covering of nylon.

Neolay Aircraft Wire is high in dielectric strength, and is resistant to fire, mildew and to the solvent effects of oil, gasoline, glycol, fresh and salt water.

Investigate. Write United States Rubber Company, Wire and Cable Department, 1230 Avenue of the Americas, New York 20, N. Y.

Neolay

AIRCRAFT WIRE

Quick knockout blow for cabin fires!

Here's a *Kidde-designed anti-freeze* extinguisher that weighs only 7 pounds. Needs no laborious pumping. Light enough, and simple enough, for a stewardess to use with one hand. Yet it holds a quart and a half of anti-freeze water solution . . . discharges a hard-hitting stream that quickly puts out fires in seat cushions, blankets, paper and similar materials in aircraft interiors. (Its freezing point is below-40°F.)

Just press the button on the extinguisher . . . immediately, the puncturing of a sealed cartridge of carbon dioxide (CO_2) releases the energy that powers the water stream. Extinguisher is easily recharged with plain water during flight. No special tools or other equipment needed . . . just carry a spare cartridge or two of CO_2.

Light, compact, fast and sure in action, this is the ideal extinguisher for carbonaceous fires in aircraft cabins. Specially designed aircraft brackets are available. You'll want the full facts . . . write for them today!

This use of CO_2 as the propellant for a water stream is but one of the many ways in which Kidde has harnessed the energy of gases-under-pressure to make flying safer. Kidde engineers are always ready to work with government agencies, aircraft manufacturers and transport companies in developing new applications of gases-under-pressure—or new equipment to utilize the gases more effectively.

Kidde

SPECIALISTS IN GASES-UNDER-PRESSURE

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

Walter Kidde & Company, Inc. • 918 Main Street, Belleville 9, N. J.

HAPPIER LANDINGS IN CHICAGO

AT

Skymotive INC.

ON

Chicago's New

PUBLIC AIRPORT

35 Minutes from the Loop

CHICAGO ORCHARD

(Douglas)

Includes:

- Four 6000-foot Concrete Runways
- CAA Control Tower (Orchard Tower 332 KC)
- The Best Runway Lighting—Approach Lights—
- Weather Facilities
- I. L. S. now operating

Skymotive Service

INCLUDES

—CAA APPROVED REPAIR STATION NO. 3712

—RADIO REPAIR
Bendix products
Aircraft Radio Corp. V. H. F.

—HELICOPTER Maintenance

—HANGAR SERVICE

—COMPLETE Line of SHELL products

—STATION WAGON SERVICE to and from Downtown

Phone—CHICAGO NEWCASTLE 4311

A collect call or wire will alert us for any special needs.

SKYMOTIVE

DOUGLAS AIRPORT • NORTHWEST CHICAGO

Jack Hennebry, Gen. Mgr. - Phil Cochrum, Pub. Rel.

Box 448, Wolf Road and Bryn Mawr Ave.

Park Ridge, Illinois

AVIATION WEEK

Vol. 47 No. 13 — Sept. 29, 1947

INCORPORATING AVIATION AND AVIATION NEWS

The Aviation Week	7	New Aviation Products	16
News Digest	8	Sales & Service	23
Headline News	9	Briefing for Dealers	25
Industry Observer	12	Transport	27
Enginering - Production	14	Editorial	34

Robert H. Wood
EDITOR

John Foster, Jr.
EXECUTIVE EDITOR

Merlin H. Mickel
MANAGING EDITOR

Robert B. Hotz ..... News Editor	Albert E. Smyser, Jr. ..... Engineering
Irving Stone ..... Technical Editor	Scholer Bangs ..... Pacific Coast Editor
William Kroger ..... Production	Katherine Johnsen ..... Congress
Alexander McSurely ..... Sales & Service	Herbert F. Powell ..... Special Assignment
Charles L. Adams ..... Transport Editor	Blaine Stubblefield ..... Special Assignment
Robert McLarren ..... Engineering	Marie Adams ..... Editorial Assistant

Researchers, V. Giaculli, A. L. Scaffo, W. D. Lanier

Executive and Editorial Offices: 330 W. 42nd St., New York 18, N. Y.; National Press Bldg., Washington 4, D. C.

Domestic News Bureau: Atlanta 3, Rhodes Haverty Bldg.; Chicago 11, 520 N. Michigan Ave.; Cleveland 15, Hanna Bldg.; Detroit 26, Penobscot Bldg.; Los Angeles 14, 621 S Hope St.; San Francisco 4, 68 Post St.; Houston, 514 South St. *Correspondents:* Boston, Buffalo, Dallas, Dayton, Denver, Indianapolis, Jacksonville, Kansas City, Knoxville, Lansing, Louisville, Memphis, Miami, Milwaukee, New Orleans, Oklahoma City, Ogden, Philadelphia, Phoenix, Pittsburgh, Portland (Ore.), St. Louis, Salt Lake City and 43 other cities.

Foreign News Bureau: London, Paris, Berlin, Prague, Moscow, Shanghai, Bombay, Montreal, Ottawa, Mexico City, Buenos Aires, Correspondents in Berne, Caracas, Santiago, Peiping, Tokyo, Zurich, Rome and over 100 other cities.

ECONOMICS STAFF

Dexter M. Keezer, Sanford S. Parker, William F. Butler, John D. Wilson

Robert F. Boger
PUBLISHER

J. C. Anthony
MANAGER

Business Manager, J. G. Johnson — *Art Director,* Henry L. Sandstrom

R. W. Martin, Jr., *Sales Manager;* M. J. Storz, New York; L. J. Biel, Philadelphia; V. K. Dissette, Cleveland; R. F. Greene, Detroit; A. B. Martin, Chicago; W. G. Ashmore, Atlanta; J. W. Otterson, San Francisco; C. F. McReynolds, Los Angeles. Other sales offices in Pittsburgh, St. Louis, Boston and London.

McGRAW-HILL PUBLISHING CO., Inc., Publishing Office, 99-129 N. Broadway, Albany, N. Y. Return postage guaranteed. Editorial and executive offices: 330 W. 42nd St., New York 18; 520 N. Michigan Ave., Chicago 11; 69 Post St., San Francisco 4; Aldwych House, London, W.C. 2; National Press Bldg., Washington 4, D. C.; Architects Bldg., 17th & Sansome Sts., Philadelphia 3; Hanna Bldg., Cleveland 15; 2980 Penobscot Bldg., Detroit 26; Continental Bldg., St. Louis 8; 1427 Statler Bldg., Boston 16; Rhodes-Haverty Bldg., Atlanta 3; 621 S. Hope St., Los Angeles 14; 738-9 Oliver Bldg., Pittsburgh 22. JAMES H. McGRAW, Founder and Honorary Chairman; JAMES H. McGRAW, Jr., President; CURTIS W. McGRAW, Senior Vice-President and Treasurer; JOSEPH A. GERARDI, Secretary; NELSON BOND Director of Advertising; EUGENE DUFFIELD, Editorial Assistant to President; J. E. BLACKBURN, Jr., Director of Circulation . . . Aviation Week, 330 W. 42nd St., New York 18. Published weekly, price 50¢ a copy, 50¢ in Canada. Allow at least ten days for change of address. Address all communications about subscriptions to Director of Circulation, 330 W. 42nd St., New York 18, N. Y. Subscription rates—United States and possessions, $5 a year, $8 for 2 yr., $10 for 3 yr. Canada, $6 for 1 yr., $10 for 2 yr., $12 for 3 yr., payable in Canadian currency at par. Pan American countries, $10 for one yr., $16 for 2 yr., $20 for 3 yr. All other countries, $20 for 1 yr., $30 for 2 yr., $40 for 3 yr. Please indicate position and company connection on all subscription orders. Entered as second class matter July 16, 1947, at Post Office, Albany, N. Y., under Act of March 3, 1879. Volume 47, Number 13. Printed in U.S.A. Cable address "McGraw-Hill New York." Member A.B.C.

Copyright 1947, McGraw-Hill Publishing Co.

Aviation Week is indexed in "Reader's Guide to Periodical Literature" and in "Industrial Arts Index." Following publications are combined with AVIATION WEEK: AVIATION, AVIATION NEWS, AERONAUTICAL ENGINEERING and AIRCRAFT JOURNAL.

All rights to these names are reserved by McGraw-Hill Publishing Co.

KOLLSMAN CABIN INDICATORS offer a means of increasing passenger interest and enjoyment in their flights. These large, easily read, self-operating indicators are easily installed and provide a continuous report of such frequently changing flight conditions as Altitude and *True Air Speed.* Attractively modern in design and available in color schemes to blend with other cabin appointments, they will add a luxury note to the aircraft.

KOLLSMAN AIRCRAFT INSTRUMENTS

PRODUCT OF

SQUARE D COMPANY

ELMHURST, NEW YORK • GLENDALE, CALIFORNIA

THE BEST PROOF IS *Better Performance*

TO ASSURE smooth, dependable, efficient flight, Texaco has the industry's most complete line of aircraft engine oils, lubricants for airframe and engine accessories, and aviation fuels . . . more of them meeting A-N specifications than any other brand.

Best proof of the superior quality of Texaco Aviation Lubricants and Fuels is the way they perform in your own planes. Use *Texaco Aircraft Engine Oil*, for example, and you'll see why, on the basis of better performance —

More revenue airline miles in the U.S. are flown with Texaco Aircraft Engine Oil than with any other brand.

You can get Texaco Aviation Products and Lubrication Engineering Service coast to coast. Just call the nearest of the more than 2500 Texaco distributing plants in the 48 States, or write The Texas Company, *Aviation Division*, 135 East 42nd Street, New York 17, New York.

TEXACO Lubricants and Fuels
FOR THE AVIATION INDUSTRY

Tune in...TEXACO STAR THEATRE presents the TONY MARTIN SHOW every Sunday night. See newspaper for time and station

THE AVIATION WEEK

JUDGING COMMISSION—During the public inquiry it is holding to form judgments on the state of aviation, the President's Air Policy Commission also is being judged by aviation.

After two weeks, most aviation observers like what they see. Commission questions are intelligent, sometimes pointed. There are indications of prompt action on emergency situations (Chairman Finletter implied a willingness to intercede with CAB to postpone the 12-cent-a-ton-mile freight boost by certificated airlines).

Fine staff work seems to be at the bottom of the high opinion in which the commission is held. Witnesses' testimony must be in commission hands about one week before it is to be delivered. This gives the commission's staff of experts time to digest it, prepare questions to highlight important points or to clear up ambiguous passages. This procedure also saves time, keeps the hearings moving along.

This procedure also makes some witnesses' appearances not too happy. Obviously deep reflection and consideration has gone into preparation of questions.

OUTLINES APPEAR—Because of the penetrating nature, or the repetition of some of the questions, broad outlines of the commission's thinking are beginning to emerge. Best opinion is that the lifetimes four of the men have spent in the business world (exception: Vice Chairman George Baker) is at least partly moulding their views on air policy.

Pleas by the certificated air transport industry for more and more government financial assistance for those now in the business have seemed to irritate the commission.

Commission does not seem impressed with argument that the air transport field should now be closed completely.

It appears concerned that fullest exploitation of the air freight field be made.

It is deeply interested in whether the Civil Aeronautics Act of 1938 should be revised.

It is sympathetic with the financing problems of fixed base operators and aware of the importance of the GI training program to operators.

SOFT-PEDALING SUBSIDIES—Those who have watched for two weeks the performance at the table in the Department of Commerce auditorium have not been overly satisfied with the appearances of the representatives of the certificated airlines.

There is a distinct feeling that there may have been too much emphasis on government financial aid.

This may serve to modify statements of future witnesses. This week the aircraft manufacturers make their bow before the commission. On the basis of their past statements, the manufacturers' approach will be considerably different than that of the air transport industry.

The aircraft industry's contention has always been it does not ask, need or want subsidies. It believes the national security demands a military aircraft procurement rate that in itself would be high enough to enable the manufacturers to stay in business.

This argument is happily chosen as it can not permit a clash between public and private interest. To the manufacturers it is only a fortunate coincidence that a procurement rate high enough to benefit the country also would benefit the manufacturers.

FREE ENTERPRISE—The manufacturers have another long-time policy – maximum competition – that should appeal to President Truman's businessman commission. They stoutly resist insistence—sometimes even from the services—that a small group of companies be selected as the Air Forces' and Navy's prime suppliers and in effect guaranteed a profit. Progress, the manufacturers contend, comes through competition.

MEETING GROUND—On one point the aircraft industry, in the light of its record, will make common cause with the air transport industry. The government should underwrite the development of new transports.

While splitting on several issues, all the airlines representatives stressed the need of federal backing for new transport plane development. The manufacturers fervently support that view.

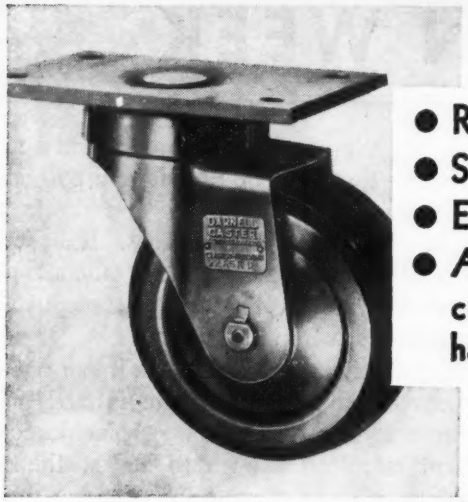
Development in this country of jet transports in particular is extremely unlikely unless the Army and Navy do put up the initial financing. One manufacturer has a design already to go to the shop. The finished article would cost about $20,000,000. That is too great a burden for either manufacturer or airline.

SHADOW OF PAST—Chairman Finletter's stock question regarding adequacy of existing act, and the near-universal answer that the act is all right but that its administration is poor, is reminding observers that means for quick correction of that situation exists.

CAA and CAB were created within the framework of the act by presidential executive order. President Truman has similar authority to restore the past organization, including an independent air safety board.

If the need for such action seemed pressing and it were to be undertaken, it would be only an interim measure until Congress reconvened. Congress has veto power over an executive reorganization in any event. It has pending its own plans for revamping the governmental aviation structure and would not relish such white house action.

But insistence grows for an overhauling of CAA, CAB, and, in quarters, for an independent air safety board.



- Rust-proofed
- String Guards
- Extra-strong axle
- All Wearing parts carbonized and hardened . . .

DARNELL
CASTERS & WHEELS

KEEP TURNING
AND EARNING

From the Darnell line of nearly 4,000 Casters and Wheels you can specify the exact type to meet your particular requirements – for light, medium and heavy-duty service.

DARNELL CORP. LTD. LONG BEACH 4, CALIFORNIA
60 WALKER ST., NEW YORK 13, N.Y.
36 N. CLINTON, CHICAGO 6, ILL

NEWS DIGEST

DOMESTIC

Douglas C-54 "Robert E. Lee", electronically-controlled transport of the Air Force all-weather flying center, will make a return flight across the Atlantic about Oct. 1. Crewmen project engineers believe a flight of 3,000 miles to a destination and return is entirely feasible with the homing transmitter automatically opening bomb doors and releasing bombs of crewless long-range bomber.

Stephen F. Leo, AAF veteran and former civilian adviser to AAF director of information, was named director of public relations for department of Air Force under secretary Symington. Brig. Gen. Emmett O'Donnell becomes director of air information for the U. S. Air Force.

Northwest Airlines, after demonstrating its first Martin 2-0-2 at points along its system late this month, plans to put the craft in regular service early in October. Company expects to have from six to ten of the 40-passenger airliners in service by year-end.

FINANCIAL

CAB has approved Western Air Lines' application for a $4,500,000 loan from Reconstruction Finance Corporation.

AIA board of governors has tentatively set Dec. 4 for a Los Angeles meeting of all aircraft company presidents, both East Coast and West Coast.

Directors of Jack & Heintz Precision Industries, Inc., Cleveland, Ohio, declared a 50 cent dividend on cumulative preferred stock 4 percent series payable Oct. 1 to holders of record on Sept. 23.

Braniff Airways, Inc. reports net loss of $164,047 for the second quarter, bringing first half losses to $709,977 after carry back provisions of $618,302 had been incorporated. Total revenue for the first half was $5,083,128.

FOREIGN

Peruvian International Airways last week was slated to begin scheduled DC-4 flights from Santiago, Chile and Lima, Peru to Washington and New York via Panama City and Havana.

London Aero Motor Services, largest European air freight carrier, has merged with Alpha Airways, South African cargo carrier. The new group plans world-wide operations with bases in Britain, South Africa and Australia and plans trans-Pacific operations starting in October.

BOAC has scheduled a weekly service between Montreal and London using mid-Atlantic air-refueling of converted Convair Liberator transports. Avro Lancanstrians will transfer 2,000 gallons of fuel in mid air.

Braniff Airways has filed airport notices with CAB indicating plans to start service to Havana, Balboa, Guayaquil (Ecuador) and Loma around Oct. 15.

VOL. 47 • NO. 13

AVIATION WEEK

SEPTEMBER 29, 1947

INCORPORATING AVIATION AND AVIATION NEWS

NEW SECRETARY OF THE AIR FORCE

W. Stuart Symington III, former Assistant Secretary of War for Air, is shown taking the oath of office as first Secretary of the Air Force in the Pentagon. Administering the oath is Chief Justice of the Supreme Court Fred Vinson. Watching are Kenneth Royall, Secretary of the Army; James M. Forrestal, Secretary of National Defense, and John Sullivan, Secretary of the Navy. (USAF photo)

United States Air Force Emerges From New Defense Organization

Airmen get control of research, procurement, strategic missiles and own anti-aircraft in initial split with Army.

The United States Air Force emerged from its 30 year hibernation in a musty War Department cocoon last week with two simple swearing-in ceremonies at the Pentagon that saw James V. Forrestal inducted as first Secretary of National Defense and W. Stuart Symington take the oath as first Secretary of the Department of Air Force.

Forrestal's oath-taking was ordered by President Truman by radio from the battleship Missouri to set the new national defense machinery in motion. Although the USAF has officially severed the umbilical that bound it to the War Department, now Department of the Army, many minor strings will bind it loosely to the old relationship during a two year interim period set for working out complete and final separation policies.

► **USAF Strength**—Initially the USAF will shape up as a force of 401,362 officers and men; 176,000 civilian employes and about 14,000 planes, most of them tactically obsolete. USAF authorized troop strength is sufficient to man a 70 combat group program but actual manpower is now dangerously close to the 300,000 level.

Separation of the Air Force finds the former Army airmen in the early stages of a transition from piston to jet power that will probably bring no fundamental changes in strategic thinking but already foreshadows a revolution in tactics. Core of the USAF will be its Strategic Air Command of long range bombers, now commanded by Gen. George Kenney, and generally conceded to be the only significant portion of the USAF ready for immediate combat.

Kenney's command will be built upon a backbone of Boeing B-50's, Convair B-36's and possibly Northrop B-35 flying wings if the propeller gear box bugs are eliminated from that radically-designed long range bomber. Boeing's C-97 Stratofreighter will be relied on to give the bombers mobility of airborne supply.

► **Details of Split**—In general the initial split gave to the USAF control of functions over which it exercised almost complete autonomy under the old War Department regime and retained the Department of the Army service functions for the Air Force until the new organization can take over its own housekeeping completely. Biggest remaining link will be through the 1949 budget which will continue as a joint Army-Air Force project since so much initial spadework was completed before the new defense plans became effective. First independent Air Force budget will come in 1950.

Among the 200 specific agreements on the split reached between the Army and Air Force the following are most significant:

• **Plans and Policy**—The Air Force assumes complete control of its own planning and policy recommendations. It will also assume administrative supervision of military air missions and commissions in Latin America including execution of contracts and procurement.

• **Procurement**—Air Force will assume responsibility for its own procurement program. Air Force will assume responsibility for contract settlement on its contracts that do not fall under Contract Settlement Act of 1944. The latter will continue as joint Army-Air Force responsibilities. Air Force renegotiating cases will be transferred to the Army before January 1948. Air Force will assume approval of its own contracts and responsibility for contract frauds at a future date to be determined by the Secretary of the Air Force and the Secretary of the Army.

• **Research**—Air Force will be responsible for its own research and development program including primary responsibility for guided missile work for both Army and Air Force as previously prescribed. Increased reliance will be placed on a broadened concept of the old War Department research council to insure Air Force representatives on Army and Navy research groups and vice versa.

• **Industrial Mobilization**—Air Force will do its own industrial mobilization planning subject to direction of the Munitions Board as soon as authorized by the Secretary of National Defense.

• **Guided Missiles**—Air Force will assume control of all strategic long range missiles and surface to air missiles designed for use in area air defense. Army gets short range tactical missiles and surface to air missiles designed for air defense of troops or tactical objectives.

• **Weather**—Air Force will operate its own weather service and provide meteorological data for the Army.

• **Anti-aircraft**—Air Force will train and control all anti-aircraft attached to it for air defense purposes. Army will continue to train initially and activate all anti-aircraft and provide Air Force with units it requires.

• **Intelligence**—Air Force will operate its own foreign attache system.

• **Troop Carriers**—Air Force will be responsible for training all troop carrier and transport units required by the Army.

• **Transportation**—Air Force will provide air transportation including operation of aerial ports for both Air Force and Army. It will also continue to conduct rate negotiations with air carriers.

• **Personnel**—All officers who hold commissions in the regular Army or reserve Air Corps, or Air Corps, Army of the United States are transferred to the Air Force along with all enlisted men now under the command, authority or jurisdiction of the commanding general Army Air Force.

Merrill Meigs Will Head Congressional Air Staff

Merrill Meigs, wartime chief of WPB's aircraft division, is slated to head the professional staff of the House-Senate Air Policy Committee.

The committee, which, following a few organizational meetings recessed to Sept. 30, has offered Meigs the post and he is reported ready to accept if he can obtain a leave of absence from Hearst publications. If not, Meigs has volunteered to serve the group in an advisory capacity. He is a proponent of Sen. Owen Brewster's (R., Me.) community company, but there appears little likelihood that this controversial issue will figure in the committee's air policy study, even though Brewster is its chairman. Other committeemen have emphatically ruled out its consideration.

The committee has also invited twenty individuals from all branches of aviation to serve in an advisory capacity, but declined to disclose their identities until they have accepted.

It appears that the group will limit its activities to "gathering information" in executive sessions until the end of the year, withholding hearings and recommendations until it has reviewed the report of the President's Air Policy Commission—scheduled for submission to the printer's by the beginning of December. Transcripts of the proceedings before the Presidential commission are being carefully reviewed by the staff of the joint congressional committee.

LAV Orders 2-0-2s

Linea Aeropostal Venezolana, Venezuela, has placed an initial order for two Martin 2-0-2s for use between Trinidad, Caracas, Maracaibo, Barranquilla and Balboa. First will be delivered in October and the second in December.

HURRICANE AFTERMATH

Although scheduled airlines and some nonscheduled operators were able to ferry their planes north out of the path of the recent Florida hurricane, others were not so fortunate, as is shown by this picture of a DC-3 and PBY-5A caught by the high winds at Miami Airport.

AFA Urges 70 Group Air Force; Reserves

A strong stand on air power and national security was taken by the Air Force Association in a statement of policy and a program of supporting action at its first national convention in Columbus.

Confining its recommendations to questions of national security, the AFA urged vigorous support of:

▶ **National Security:** "Our present foreign policy and present air policy cannot exist side by side without courting national disaster. One or the other must change. (We) . . . urge the allocation of sufficient funds to maintain an Air Force of at least 400,000 officers and men and 225,000 civilians, comprising 70 combat groups with supporting establishments and services, augmented by a well-trained civilian component of 78 groups on immediate call. We demand an adequate number of groups specially trained and specially equipped for atomic bomb operations. We ask for well-equipped bases of operation under air commanders at strategic points between any potential enemy and our homeland."

▶ **Unification:** "We consider this legislation as only the first hesitant move to improve an outmoded system. (It) dissipated our aerial potential by failing to give the Air Force control over all land-based aircraft."

▶ **Reserve Strength:** "To back up the Air Force in being, we demand a better organized and financed reserve program than is evident at the moment."

▶ **The Air Force:** "We expect the new United States Air Force to be a streamlined organization on both administrative and operational levels, breaking from Army tradition wherever tradition compromises efficiency. We look forward to individual advancements based entirely on responsibility and merit."

▶ **Research and Development:** "We consider the current status of aviation research and development a crime against the American people. We commend the general interest in atomic energy but caution against harboring atomic illusions at the expense of other projects."

▶ **Aircraft Production:** "We urge immediate restoration of the Air Force's original request for 3,000 planes for fiscal 1948 and we stress adoption of the industry's recommended five-year planning program. We urge that every possible effort be made to spread Air Force orders among a maximum number of companies and retain the initiative and competition which have paid off so handsomely in the past."

New Department?

Establishment of a new department of civil aviation, to include the functions of the CAB and CAA, and to be headed by an officer of cabinet rank who would set policies, allocate new air routes, etc. was proposed to the President's Air Policy Commission last week by William A. M. Burden, former assistant Secretary of Commerce for Air. Arthur D. Whiteside, president of Dun & Bradstreet, Inc., and member of the commission, pointed out that the trend was away from increasing the cabinet and suggested that the proposed secretary of civil aviation could be included in the new Department of National Defense along with Air Force Army, and Navy secretaries.

Burden also criticized salaries paid to CAB members and the Administrator of Civil Aeronautics, saying they were far below those paid for comparable responsibilities in industry, and urged that they be increased to $17,500 a year from the present $10,000 figure.

CAB Report Cites Gust Lock As LaGuardia DC-4 Crash Cause

Revision of transport category regulations under way in joint CAA-CAB study as result of accident investigation; safety failures listed.

By ROBERT HOTZ

Failure to disengage the gust lock causing controls to remain locked in neutral position on take-off was blamed by the Civil Aeronautics Board for the crash of a United Airlines DC-4 killing 43 persons at LaGuardia Field last May 29.

In one of the most voluminous and detailed accident reports ever issued under its auspices the board noted that inability of the pilot to actuate the controls due to the gust lock being on resulted in his decision to discontinue take-off at a point too far down the runway to permit stopping within airport boundaries.

▶ **Reconstruct Accident**—Reconstructing the accident, the report stated that the UAL pilot, Capt. Benton Baldwin, who survived, decided to discontinue his take-off when the DC-4 was 1,000 ft. from the end of the 3,530 ft. runway 18 at LaGuardia. He applied brakes, ordered the co-pilot to cut throttles and attempted to ground loop to the left. The plane continued to roll straight ahead and, with both brakes locked, crashed through the fence at the airport boundary; half-bounced and half-flew across Grand Central Parkway; came to rest 800 ft. from the end of the runway (1,700 ft. from the point where brakes were first applied) and immediately burst into flames.

In building up its case for failure to disengage the gust lock the board pointed out the following factors:

• **Gusty Winds** in the van of an approaching line squall required the gust lock to remain on while the plane taxied to the end of runway 18.

• **Delay At The** end of runway, caused by obtaining clearance from airways traffic control, may have caused the gust lock to have been left on or re-applied after the normal cockpit check was completed with the intention of releasing it just before starting take-off run.

• **Take-off Run** was begun hurriedly to get off before the approaching line squall hit the field.

• **Locking Handle** could remain in the up or locked position without the use of the red gust lock tape normally wound through the control column and fastened to the handle to indicate the gust lock is on. This may have led the pilot to assume the gust lock was off merely because the tape was reeled in and detached from the lock handle.

• **Attitude** of the DC-4 on take-off run supported the gust lock theory, according to the report, since the plane had reached an airspeed of at least 112 mph., well above flying speed, but not even the nose wheel left the ground. Plane also failed to respond to heavy left braking indicating rudder was locked.

The board indicated that a better device for insuring release of the gust lock prior to take-off is necessary.

Although pinning primary cause of the accident on the unreleased gust lock, CAB investigation of the crash, sparked by CAB chairman James M. Landis who personally cross-examined witnesses and headed the President's special Air Safety Board, uncovered numerous other conditions surrounding the fatal flight that require corrective action.

Among these conditions were:

• **Failure Of The Pilot** to adequately check weather reports before take-off. Baldwin testified that he had not seen reports forecasting arrival of a prefrontal line squall at LaGuardia at 7 p. m. and was not concerned with them because his departure was scheduled for 6:30 p. m. Due to various delays he did not begin his take-off run until 7:04 p. m. when the squall was breaking over Hell Gate about two miles west of the field.

• **Overloading Of United's DC-4** by 3,469 lb. due to failure of United's gross weight calculations for runway 18 to allow for a 10 ft. gradient and obstacles. Maps of LaGuardia field showing all obstacles had been available for a year prior to the accident but no corrections for runway 18 obstacles had been made by United. The report also noted discrepancies between data on the DC-4 published by Douglas Aircraft Co. and gross weight charts prepared by United.

Although the DC-4 was overloaded according to transport category regulations, the board pointed out that according to engineering calculations it still should have been able to take off from runway 18 and clear the necessary obstacles unless other factors intervened.

• **Investigation By CAB** disclosed that gross weight charts filed by airlines had never been checked by any CAA official and that no standard calculations have ever been made against which the weights airlines filed can be easily checked. Neither is there any uniformity among the airlines on the allowable gross weights they file for identical aircraft. These filings are not even made at any central place for the same airport, but at the CAA regional office that has jurisdiction over the particular carrier involved. United's gross weights for LaGuardia were filed in Chicago and not available at CAA's New York office. The report also noted that Capt. Baldwin did not refer to his gross weight charts carried in the cockpit before making a decision to use the short runway 18.

• **Lack Of Temperature** accountability in the transport category regulations that added approximately five unseen passengers (at 200 lb. per head) to the United DC-4 taking off at 67 degrees fahrenheit. The board calculated that each degree above standard temperature (59 fahrenheit) has the effect of adding 180 lb. to a DC-4.

The report took a dim view of the wind factor which allows increased gross weights at the rate of 160 lb. for each mile per hour of wind. It stated flatly that under present transport category regulations a wind shift could precipitate a crash. However it was definitely established that the windshift at LaGuardia occurred after the crash and was not a contributing factor.

▶ **Board Action**—"To the lay mind, the very fact that a wind shift of that character (at LaGuardia) might produce a tragic accident such as this is a matter of genuine concern," the report stated. "Certainly the safety of air transportation, if it is to retain an increasingly wide public confidence, cannot be allowed to let the safety of passengers hinge upon occurrence of that character."

The board appended a list of corrective actions that have been recommended as a result of this accident. They include:

• **Addition Of All Runway** gradients, however small, to allowable gross weight calculations for particular runways.

• **Emergency Regulation** adding temperature accountability to gross weight calculations. This regulation original scheduled to be effective Sept. 6, has been postponed to Oct. 15 at the request of the airlines.

• **CAA Is Working** on a new definition of winds for the transport category regulations restricting the wind factor to winds that are reasonably steady and constant.

• **President's Special** Air Safety Board has requested Douglas Aircraft Co. to re-design the gust lock on the DC-4 to insure against locking on take-off or in flight. This board also recommended installation of lighted wind socks at both ends of all runways. LaGuardia now has a lighted wind tee for the field and one lighted windsock at the end of a runway. CAB indicated that failure of municipalities to respond to this recommendation may call for further action.

• **Port of New York** Authority has closed runway 18 at LaGuardia to all four engined planes.

Final CAB reports on the crash of an Eastern Airlines DC-4 at Port Deposit, Md. and a Pennsylvania Central DC-4 accident at Leesburg, Va. are still pending. The three crashes killed 146 persons over the Memorial Day weekend.

Installation of VHF omni-beam transmitter at Albany is typical of CAA's present program. Commissioning is being delayed by lack of transmitter parts. Anti-static characteristics are stressed as safety factor for instrument flight. (Acme photo)

New Range Program Hit by Shortages

Installation of omni-beam ranges by CAA halted by lack of delivery.

CAA's omni-beam range program for construction of a network of anti-static VHF navigational ranges now is hampered by the agencies inability to get delivery of vital transmitter parts.

In CAA Region 1, four stations on the Cleveland-Boston airway have been erected and are to be commissioned late this year if necessary parts are delivered. Many other proposed ranges are nearing completion. Sites have been selected, and several transmitter towers already have been erected. Remainder of the regions' 40 stations will be completed and commissioned as quickly as electrical equipment becomes available.

Present "Visual and Aural" (VAR) ranges will be replaced with Visual Omnibeam (VOR) ranges when aircraft receiving equipment is widely installed and available for all aircraft.

► **Any Course, Any Station**—Value of the VOR system lies in the fact that any of 360 courses may be flown to any station. This features, together with new versions of airways which provide multiple lanes for traffic, should increase safety during instrument flight conditions.

Three VOR stations have been in experimental operation at Allentown, Sunbury, and Phillipsburg for some time. Major airlines with ships equipped for this type of reception have been using the ranges for training programs.

Ultimately these ranges will replace all low frequency stations in the U. S., but the process is slow due to lack of airborne receivers and the care which must be exercised in the selection of sites. Sites will be near the location of existing ranges.

INDUSTRY OBSERVER

► **North American's XB-45 multi-jet bomber, now undergoing flight tests at Muroc, is reported to be walking away from Lockheed P-80 fighters that accompany the bomber on all flights. This would indicate the bomber can hit around 600 mph. on the basis of the Air Force 560 mph. rating of the military model P-80.**

► West Coast manufacturers feel the State Department and Air Force are missing a bet by not outfitting one or more of the huge military transports now available as a super-luxury transport to send around the world carrying important government missions as a flying showroom for the American air transport manufacturers. Boeing, Lockheed and Convair already have planes that would fill the bill.

► **Don't be surprised if the Navy tries for a transcontinental record with its North American FJ-1 jet fighter, despite the accidental fire that necessitated major repairs to the first FJ-1 recently at Oklahoma City on a cross-country delivery flight to Patuxent.**

► British Overseas Airway Corp. has turned thumbs down on the Avro Tudor I as a transatlantic passenger plane according to informed London sources. BOAC refuses to comment.

► **Douglas DC-6 transports have already logged about 7,000,000 flight miles since going into regular transport service last April. American now has 31 DC-6s in service with United operating 23; Panagra 3; National 2; and Sabena 1.**

► Robert Fulton's Airphibian No. 2 has been flying for several weeks at Danbury, Conn. airport, with an improved flight component as the main apparent difference from the first airphibian flying automobile.

► **Stinson Voyager will probably be the first four-place airplane to flight test the Goodyear castering wheel for crosswind landings, although a number of other companies also will receive experimental wheels for tests on personal plane production models soon.**

► Cessna may write off some tooling cost on the big model 190-195 by using some of same tooling in production of the new four-place Cessna 170 expected to sell for below $5,000.

► **Experimental 190 hp. version of the Stinson Voyager is not expected to go into production, because performance gain over present model has been relatively small.**

► Goodyear Aircraft's newly developed all-metal helicopter rotor blades have already been testflown on a Sikorsky R-5 at Wright Field. They contain thermal deicing ducts.

► **Taylorcraft, Inc. at Alliance, is projecting a four-place which C. G. Taylor expects to have the same slow landing characteristics as his two-placers, moderate top speed around 110 mph. and which may sell as low as $4,000. Meanwhile the four-placer built by the bankrupt predecessor company, Taylorcraft Aviation Corp., and NC'ed but never produced in quantity, has been scrapped, along with the TAC all-metal two-place experimental design.**

► Oil company aviation competition in Arizona is having a favorable effect in airmarking the state. Standard (Calif.), Shell, Union and General Petroleum, are all competing in the airmarking program.

► **Tri-control, an experimental simplified control for lightplanes which eliminates use of rudder pedals, yet permits separate use of all three controls, may get a second chance, through AAF tests at Wright Field. First introduced at the aircraft show, last November, by Dayton (Ohio) Aircraft Products Inc. and slated for experimental tests on Waco Aristocraft and Navion, the device lost out commercially when those two airplanes were withdrawn from the market.**

Alcohol Evidence Disputed in Crash

Heated dispute between American Airlines and the Queen's County (N. Y.) district attorney developed last week over whether Capt. William A. Davidson, pilot of the Alpha radar research DC-3 was under the influence of alcohol when the plane crashed in Bowery Bay last Aug. 8.

Dist. Atty. Charles P. Sullivan disclosed that a report by N. Y. City toxicologist Dr. Alexander Gettler showed "a large amount of alcohol in the brain of the dead pilot and smaller amounts in bodies of the co-pilot and a mechanic". Sullivan said: "I feel beyond question that Capt. Davidson was suffering from alcoholism when he took off." He also indicated he would attempt to force airlines at LaGuardia Field to give official alcohol tests to pilots 30 minutes before take-off time.

► **Damon's Theory** — American Airlines president, Ralph Damon, pointed out that a possible cause for the toxicologist's report was the presence of two tanks filled with 10 gal. of anti-icing alcohol in the Alpha's cockpit which ruptured in the crash. Damon pointed out that Capt. Davidson was found with his head close to one of the ruptured tanks indicating that he might have inhaled or swallowed much of the alcohol during the 10 minutes the aircraft floated in the water and Davidson was struggling to free himself and other crew members from the wreckage. The other tank also ruptured, washing alcohol into the cabin containing other crewmen.

American Airlines also filed 28 sworn affidavits from witnesses who saw and talked with Davidson for a period of seven hours before the take-off in the research plane. They all agree he was "completely sober and perfectly normal in all respects." Among the witnesses was engineering pilot L. W. Armstrong who gave Davidson a 30 minute cockpit check in the research plane before take-off. Armstrong reported that Davidson's reactions were "extremely sharp and alert" and that he asked "intelligent and pertinent questions" during the check.

► **Report Delayed**—The toxicologist's report was not made available to Civil Aeronautics Board safety investigators prior to public announcement by Dist. Atty Sullivan. CAB indicated it would investigate reasons for withholding the report and the methods used in making the autopsy and quanitative analysis of alcohol in the bodies.

Sullivan's charges were being heard by a Queen's County Grand Jury last week.

British Ask Link

British South American Airways Corp., London, has asked CAB for a foreign air carrier permit to operate between Jamaica, British West Indies, and Miami via optional intermediate points at Nassau, Bahama Islands, and Bermuda.

LETTERS

Customer Reaction

To the Editor:

I was overwhelmed when I saw that you had based your editorial for your issue of Sept. 15 on our wing modification program...Your support and favorable comments, coming from such an authoritative source, will completely eliminate all destructive rumors which otherwise might permeate the whispering gallery of the industry.

You might be interested to know that our customer reaction has been excellent and that no individual has complained about the necessity for bringing his airplane back to the factory although quite a few of them have requested special dates because of the pressure of business engagements for which they use their Bonanza.

We find from the general pattern of answers that our owners are using their Bonanzas very actively for business purposes, and that they consider them an essential part of their business equipment. This is most gratifying to us because it indicates that there is a continuing market for personal aircraft of the type of the Bonanza based not upon occasional pleasure use, but upon continuous business operation...

JOHN P. GATY
Vice President-General Manager
Beech Aircraft Corp.

Politics In Airports

To the Editor:

The writer compliments your editorial, "Take Airports Out of Politics," in the July 14 issue.

Politics on airports has kept 90 percent of municipal airports from writing black figures. The cases of stupidity, gross negligence and carelessness with respect to obtaining non-aviation revenue at municipal airports is staggering. Most of this ineptitude is due entirely to the fact that the airport manager is that in name only. He has no powers. All of the power is delegated to some commission composed of sincere, well-meaning business men usually, but without any knowledge of airport matters or of merchandising, or the powers are conferred on a group of councilmen whose only knowledge of an airport is too often hearsay. Many times they have not even seen their own airport.

Couple this with the fact that they are in and out of office every one or two years and are only interested in how much patronage they can enjoy by trading jobs and appointing minor officials on the airport, and you have a good idea of how badly politics has messed up municipal handling of their aviation facilities.

The writer was for eight years manager of Lockheed air terminal. We were not hampered by politics because it was privately owned and operated and made money, some $650,000 after paying $1,271,000 in taxes.

DUDLEY M STEELE
Steele-Larsen-Bird
Beverly Hills, Cal.

Aircraft Welding

To the Editor:

Your editorial Sept. 15 entitled "A Demonstration of Integrity" is both very interesting and possibly misleading.

It can be interpreted from Mr. Gaty's letter that spot-welding or roll-welding makes an inferior structural joint to riveting.

There have been a large number of aircraft manufactured for the U. S. Government procuring agencies in which spot-welding has been used almost exclusively for primary structures, and although none of these aircraft may have reached the "2,000,000 mile" mark, yet laboratory fatigue tests on individual specimens have shown spot-welding to be at least equally as good as riveting, providing the technique employed is correct. Government specifications have been written and are in use outlining the technique required to obtain a structural joint.

To those manufacturers who are presently using spot-welding for primary structures, Mr. Gaty's letter can furnish adverse publicity for their product.

J. J. WALLER
Fairchild Aircraft, Ltd.
Longueuil, Quebec

AVIATION CALENDAR

Sept. 29—Annual meeting, Automotive & Aviation Parts Manufacturers, Inc., Hotel Statler, Cleveland.

Sept. 29-30—Northwest Aviation Planning Council Conference, Portland, Oregon.

Oct. 4-5—Arizona Airmen's Association convention, Douglas, Ariz.

Oct. 6-7—New York State Aviation Council meeting, Rochester, N. Y.

Oct. 9-11—Air Line Dispatchers Association annual convention, Chicago.

Oct. 10-13—Southern California National Air Races, Long Beach, Calif.

Oct. 14-16—Army-Navy-Industry technical meeting on power plant and propeller standardization, Wright Field, Dayton, Ohio

Oct. 18-24—29th annual National Metal Congress and Exposition, Chicago.

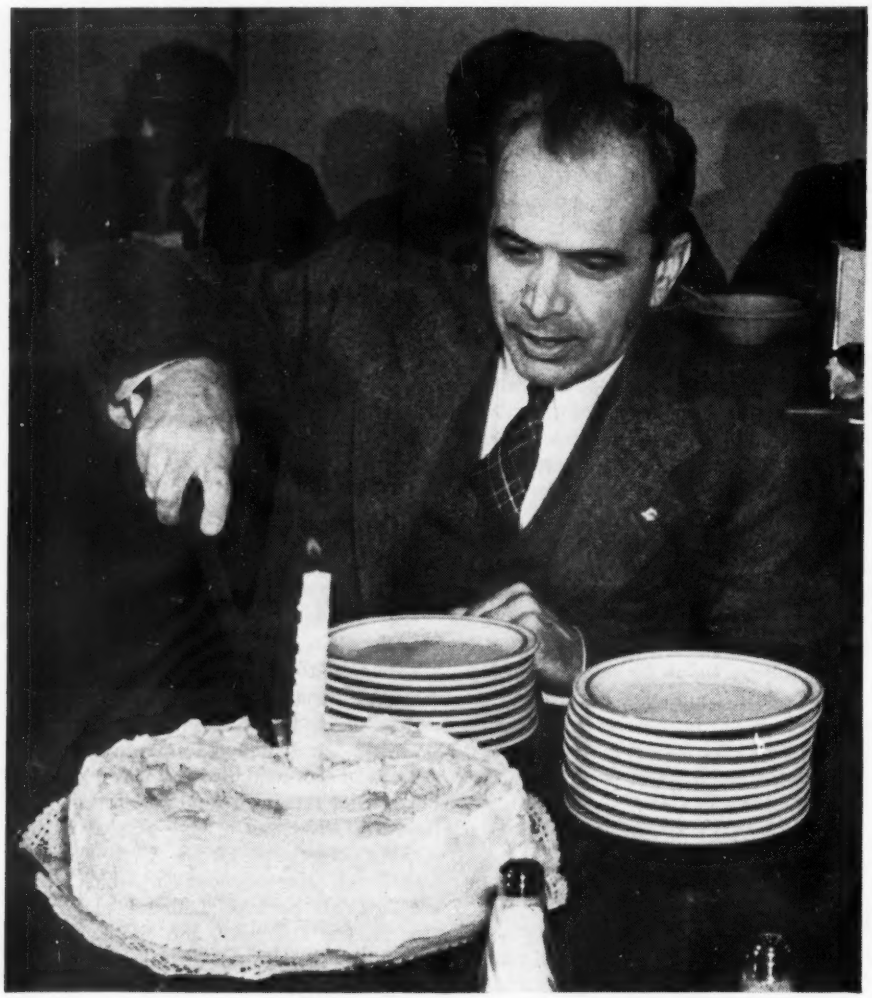
Oct. 26—Dedication ceremonies renaming Miami International Airport as Amelia Earhart Field, Miami, Fla.

Nov. 19-22—Fifth Annual National Aviation Clinic, Springfield, Ill.

Dec. 1-3—Air transport meeting, Society of Automotive Engineers, Hotel Continental, Kansas City.

Dec. 1-3—Fifth annual meeting, Aviation Distributors and Manufacturers Association, Hotel Adolphus, Dallas, Texas.

Dec. 4-6—Society for Experimental Stress Analysis, annual meeting, Hotel Pennsylvania, New York.



In 1922, T. Claude Ryan, a recently-discharged Army pilot, bought a war-surplus Jenny and entered the aviation business. The company he founded shortly thereafter has engaged in charter, mail and airline flying, repair and overhaul work, training and manufacturing.

Although his present enterprise is not the original firm, Ryan is one of the few men who have actively and continuously headed his own aircraft company for a quarter of a century (others, Donald Douglas, Glenn L. Martin). Today, he celebrates his silver anniversary in aviation. In preparation, AVIATION WEEK asked its West Coast correspondent to seek Mr. Ryan's views on where we are today and where we likely are going in personal aircraft manufacturing—Ryan's major program of the moment. The accompanying story is the result.

Ryan Sees Profit Possibilities In Lightplane Market Future

Veteran manufacturer celebrates 25th anniversary as head of firm; urges output keyed to demand.

By SCHOLER BANGS

In the face of an indifferent market for personal aircraft, Ryan Aeronautical Co. is completing its tooling for resumed production of the Navion, spurred by the conviction of President T. Claude Ryan that his company will gain in the venture.

Today, as he marks his 25th year in aviation, Ryan has the respect and admiration of industry associates, and opinions that are worth considering because they bear upon the future of personal aircraft.

"This business is just shaking down now, and coming to its senses after one hell of a spree that was not of its own choosing. Actually, the personal aircraft business is confronted today with a market that is excellent compared with normal pre-war times.

▶ **Profit Possible**—"Those who are in the business with sufficient capital, and experience, and a good product, should make money from here on out if they have learned from recent experience that the personal airplane still is not really 'big business,' and if they are willing to stop drawing parallels between the aircraft and automobile industries in planning production volume."

Ryan does not mean to imply by this that even with a somewhat stabilized market the door is open for all with a good personal aircraft design to win initial financing and start making a profit.

He is definite on that score. He believes that literally hundreds of personal aircraft designs, many already in experimental flight, will never be seen on the market. He is convinced that for the next few years, at least, markets and profits will belong to the comparative handful of manufacturers who already have established their products and have developed their sales outlets.

▶ **Slump Blessing**—This, he says, is why:

"To those who can survive it, the so-called slump in the personal aircraft industry is going to prove a blessing; a protection to them against the intrusions of unintelligent competition. . .Newcomers who think they would like to build airplanes and proceed to do so by hiring someone with promotional ability to capitalize a factory for building planes to sell at a price they can't afford.

▶ **Cost Prohibitive**—"The cost of entering the business has become almost prohibitive, from the standpoint of interesting capital in the underwriting of a new design that does not have a tested market.

"I would say that it is going to cost any newcomer who wants to try it from scratch at least a couple of million dollars to get his feet wet and develop a new personal airplane that has a chance of competing with existing models on the market. And that much money does not include a factory and general machinery. It will require two years of engineering and development, plant tooling, and sales promotion before he will be in production.

"Too many seem to be under the illusion that initial development of an airplane is possible on a pre-war basis.

"In 1934 we produced the Ryan 'ST,' our Sports Trainer.

"This model, one of the most popular ever developed, was completed, the prototype certificated, in five months by two engineers and one draftsman, who left their drafting boards to help in the final assembly once their engineering was completed. The cost was $25,000!

"Prototype development of our 'SC' three-place cabin monoplane in 1937 cost us around $50,000.

▶ **Development Costs**—"Today if we had to re-develop a plane as comparatively simple as the Sports Trainer we would not be able to handle initial development for less than $200,000. A plane of the 'SC' type would cost at least $500,000. And those are conservative figures.

"With prototype costs multiplied ten times over what they were before the war, it has become necessary that a manufacturer plan the most economical production program possible with a view of amortizing initial costs in two years if possible and realizing profits later.

"The only way to minimize production costs, over a long period, is to spend a whale of a lot of money at the very start in efficient production tooling and labor-saving machinery.

"Unless a newcomer can raise enough money to do this, to go all the way in setting up for production, he is going to be licked before he starts.

▶ **Industry Hazards**—"This, under present economic conditions, presents a prospect that should be encouraging to those already established.

"They'll not have to worry too much, for the time being, about 'new competition.'

"It is true, however, that the industry is confronted with certain hazards of existence.

"Probably the most serious is that of estimating accurately what our production volumes should be.

"Even more serious would be a general economic slump, for like it or not we have to be realistic in admission that the personal airplane still is very much in the small yacht category, marketwise. As long as business generally maintains its present level we can expect to sell airplanes on a market considerably better than we had before the war. In a general economic slump, however, many of today's good prospects would consider the personal airplane as a non-essential.

▶ **Design No Worry**—"The very least of our worries, as I see it, is the 'revolutionary design' that is going to obsolete all existing airplanes. The helicopter is the best example. It might be considered to be eventually the ideal personal aircraft for certain uses. But the problems of perfecting it to make it a safe and useful instrument in the hands of a comparative novice, and of amortizing its tremendous engineering costs, are such that it cannot be considered an intruder upon the personal airplane market for some time to come, probably many years.

"Actually, this is no time for worrying, but for settling down to make the most of our prospects.

"As I've indicated before, they're excellent.

"It is true, there is a heavy inventory hanging over the two-place personal airplane market.

"This is not true in the manufacturing of four-place planes. Because production of these planes, in the $8,000-$9,000 class, was slower following the war, manufacturers have no inventories of airplanes on hand.

"By now we have reason to feel that while it is unsound to think of producing such a plane at the rate of 20 a day, as visualized by some manufacturers a year or two ago, the market will hold firm for the manufacture of several daily—the exact number varying with the individual manufacturer's estimates of a profitable market volume.

▶ **Expand Market**—"Barring a national economic depression, there should be little trouble in holding the present market for personal planes, and expanding it gradually.

"One reason for this is that the airplane buyer today gets more airplane for his money than ever before."

High altitude specialists, Maj. Gen. Malcolm C. Grow, Air Force chief surgeon; W. E. Beall, Boeing vice president, engineering sales; Rear Admiral C. A. Nicholson, assistant chief of Navy Bureau of Aeronautics; and W. R. Lovelace II, medical director of TWA, take time out between sessions of the three day Boeing high altitude flight symposium.

High Altitude Flight Problems Diminishing

Delegates at Boeing meet see solution in sight for all major difficulties.

Recent three day symposium sponsored by Boeing Aircraft Co. added a note of finality to disposition of problems facing the industry on high altitude flights. Company officials and altitude specialists agree that all major problems have been conquered and lesser problems can be solved.

Delegates from six foreign countries, foreign and domestic airlines, colleges, federal air agencies and major aircraft manufacturers attended what became a pool of information on large, trans-ocean civil aircraft.

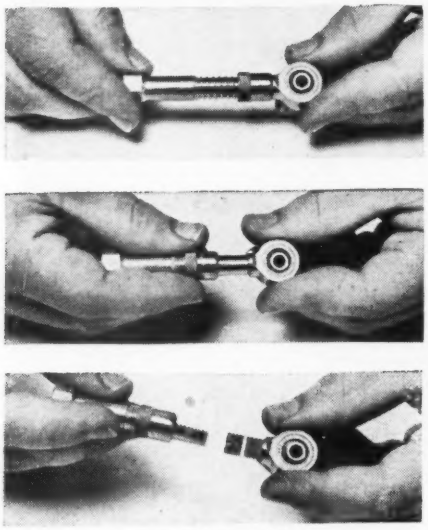
▶ **Oxygen Systems**—Only controversy at the meeting evolved over the question of the need for auxiliary oxygen systems in pressured aircraft. Dr. W. R. Lovelace II, member of the AAF Scientific Advisory Board, medical director for TWA and consulting surgeon for Northwest Airlines, introduced the subject by revealing that Northwest's Stratocruisers will include an auxiliary oxygen system that can provide oxygen to every passenger as well as the crew.

Col. A. D. Tuttle, medical director for United Air Lines, commented that their Stratocruisers would rely on emergency oxygen masks for the crew with a walk-around unit for the stewardess and oxygen bottles for passengers who might need them.

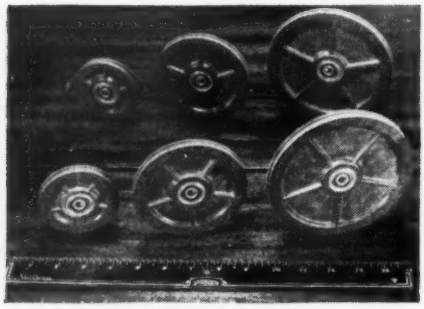
Countering this, M. F. Vanik, airworthiness requirements engineer for Boeing cited the proposal to supply oxygen to passengers as one case in point of "numerous secondary safety or emergency features which only serve to complicate the design, increase the operating cost and add little or nothing to the safety of the airplane."

▶ **Pressure Suits**—Pressure suits which would enable men to fly 10,000 feet higher than existing ceilings were discussed by Dr. John D. Akerman, head of the aeronautical engineering department at the University of Minnesota.

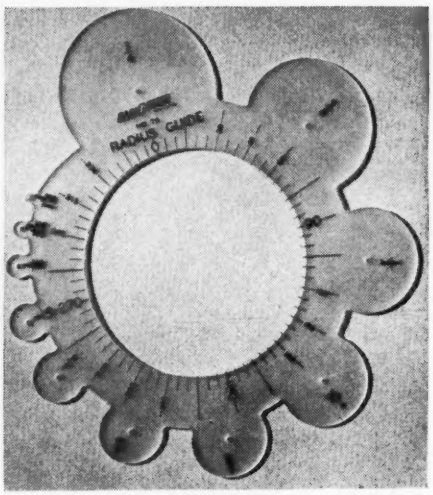
NEW AVIATION PRODUCTS



Detachable Fitting.



Control Pulleys.



Easy Delineation.

Measures Thickness.

Improved Quick-Disconnect

Newly offered is special detachable fitting for aircraft cable, wire, and rod assemblies which maker, **Potter Aeronautical Co.**, 85 Academy St., Newark 2, N. J., reports has several improvements. Two mating units are held together in compression (top photo) by a cadmium-plated beryllium-copper spring and sliding collar. When collar is turned clockwise, spring unwinds slightly and collar can then be slipped back to open position (center), whereupon mating surfaces may be freed (bottom). When mating ends are rejoined, clockwise turn releases spring and locks joint. Closure is provided by sawtooth surface of mating ends, which overlap and fit in one position only. Inner diameter of spring in its extended position is slightly less than outer diameter of joint, effecting a wire-bound splice.

Light, Laminated Control Pulleys

Extremely light weight and high strength and rigidity through a special staggered cantilever-rib design are reported features of new laminated aircraft control pulleys developed by **The Formica Insulation Co.**, Cincinnati, Ohio. Preceding company's research, a project was initiated by the National Aircraft Standards Committee to design an improved series of pulleys, since those formerly used had not been effectively coordinated with definite load and usage capacities, making selection of correct pulleys difficult even when aircraft's load characteristics and other data were known. This led to company program, bearing fruit in development of a high-load capacity pulley of three sizes on the NAS-377 flight control series and NAS-376 secondary control series.

Speeds Radii Delineation

Quick and easy delineation of radii is reported with Radius Guide No. 75 marketed for use of draftsmen and engineers and designed to eliminate time-wasting method of finding correct centers with a compass by trial and error. Device is made of transparent drafting quality .030 plastic sheets, and its diameter measurement is 4½ in. Manufacturer is **Rapidesign, Inc.**, P. O. Box 592, Glendale, Cal.

Measures Thicknesses From One Side

New efficiency in making thickness measurements of metals and other materials, particularly where access from only one side is available, is reported with Reflectogage. Developed by **Sperry Products, Inc.**, 15th St. & Willow Ave., Hoboken, N. J., to supplement company's earlier Thruray and Supersonic Reflectoscope, instrument is also intended for flaw detection. Thickness of tubing and flat parts between .005 and .300 in. can be read directly from calibrated oscilloscope screen, measurements of other parts up to 4 in. being indicated with slight calculation. In operation, quartz crystal searching unit is applied to oiled surface of material and oscilloscope pattern is then observed, factors of vertical deflection of 'scope trace and of resonance being related to thickness. A different screen is used for each type of material and for each of four thickness ranges. Measurement of prop blade section is depicted in illustration. Stating maximum error in measurement is less than 2% of thickness of material, company reports instrument is likewise adaptable for production line testing of thin pieces, or bonded or clad materials, readily detecting internal defects or separations.

Quick-Change Spray Booth Coating

"Liquid Envelope," peelable plastic film product, is now supplied in special formulation for coating spray booths. Material is sprayed on clean booth walls in film .002 in. to .005 in. thick, then when booth needs cleaning, dirty coating is peeled off in large sheets, ridding walls of all accumulated paint, lacquer, and spray dust. It is stated that 6 ft. by 6 ft. booth can be stripped clean in less than 5 min., no scraping being required, and that recoating can be done in same time. Maker is **Better Finishes & Coatings, Inc.**, 268 Doremus Ave., Newark 5, N. J.

Information Tips

Airport Service Electrical Connectors

Heavy-duty R-C-E rubber-clad electrical connectors, offered as suitable for airport ground circuits, auxiliary airplane starter equipment, electrical testing setups, etc., are described and illustrated in color bulletin, No. 201, issued by **Industrial Power & Equipment Co.**, 406 Millbridge St., Pittsburgh 10. Mechanically strong and electrically positive solderless connection is assured by patented locking features. Twist-of-wrist motion makes and breaks.

Joe and Those Shop Rules

"Whatever Became of Slow Joe Blow?" is 16-page pocket-size cartoon booklet promoting adherence to shop rules. Seen suitable for distribution to aircraft plant employees, it was prepared by Charles K. Ellsworth, *"Saturday Evening Post"* writer, and J. R. MacAllister, industrialist. Free copy is available from **MacAllister Publications**, 420 Lexington Ave., New York City 17.

Simplified Servo Control

Type SL-3 Synchro-Link is announced in illustrated circular from **Yardeny Laboratories**, 105 Chambers St., New York City 7. Unit is packaged remote servo control designed for quick positioning of one or several distant motors via a master control dial. Installation is stated to be easy and inexpensive because only three light-gage wires are needed to connect master dial with controller.

Details Hole Punchers and Job Setups

Full story of Type BL hole punching units is told in comprehensive, functionally colored 32-page catalog distributed by **Wales-Strippit Corp.**, 345 Payne Ave., North Tonawanda, N. Y. Step-by-step photos show how to set up units on templates and T-slotted plates in press brakes and stamping presses, and on rails in press brakes.

Aluminum Roofing for Hangars

Information on new high-quality aluminum roofing materials, suitable for use on aircraft hangars, is available from **Aluminum Co. of America**, Pittsburgh 19, Pa. Having excellent weathering characteristics, roofing needs no paint or preservatives, and its light weight permits erection in faster time and with a smaller crew.

NEW! Wilco Ni-Span C*

CONSTANT MODULUS ALLOY

NI-SPAN C is a Titanium-Chromium-Nickel-Iron alloy with the outstanding property of having a constant modulus, i. e. a zero thermoelastic coefficient, over a range of temperature from—50 to + 150°F. Most metals have a negative thermoelastic coeffcient, that is they become elastically weaker or decrease in stiffness with rise in temperature. The important difference between Ni-Span C and other materials, whether of the constant modulus type or otherwise, lies in the fact that Ni-Span C is a precipitation hardening alloy in which the thermoelastic coefficient is adjustable through age hardening heat treatment. This unique combination of modulus control plus the high elastic and strength properties obtained through age hardening makes Ni-Span C a new material having very important commercial applications, the most important being those where constant elastic characteristics are required without the necessity of temperature compensating devices.

Advantages of NI-SPAN C:

1. Higher hardness and higher mechanical properties obtainable through a precipitation hardening heat treatment, than can be obtained with other constant modulus alloys through cold working.

2. An extremely important advantage of Ni-Span C is that the precipitation hardening heat treatment which brings about the marked improvement in physical properties can also be utilized to adjust the thermoelastic coefficient of a given Ni-Span C composition within a certain range by means of appropriate variation in this heat treatment.

Applications:

Watch and instrument hair springs, accurate weighing scale springs, and accurate springs of all kinds, where inherent temperature compensation is required. Diaphragms for pressure sensitive instruments. All types of parts in which extremely low creep or hysteresis values are required. While the controllable modulus property does not hold good beyond 150°F., Ni-Span C has shown very small relaxation in long time tests up to 550°F.

NOW READY! Comprehensive Wilco Data Bulletin on NI-SPAN C, including complete physical and mechanical properties, recommended times for heat treatment and other pertinent information. Send for *your* copy.

Whatever your requirements for Wilco materials, our engineers will gladly help you meet them successfully.

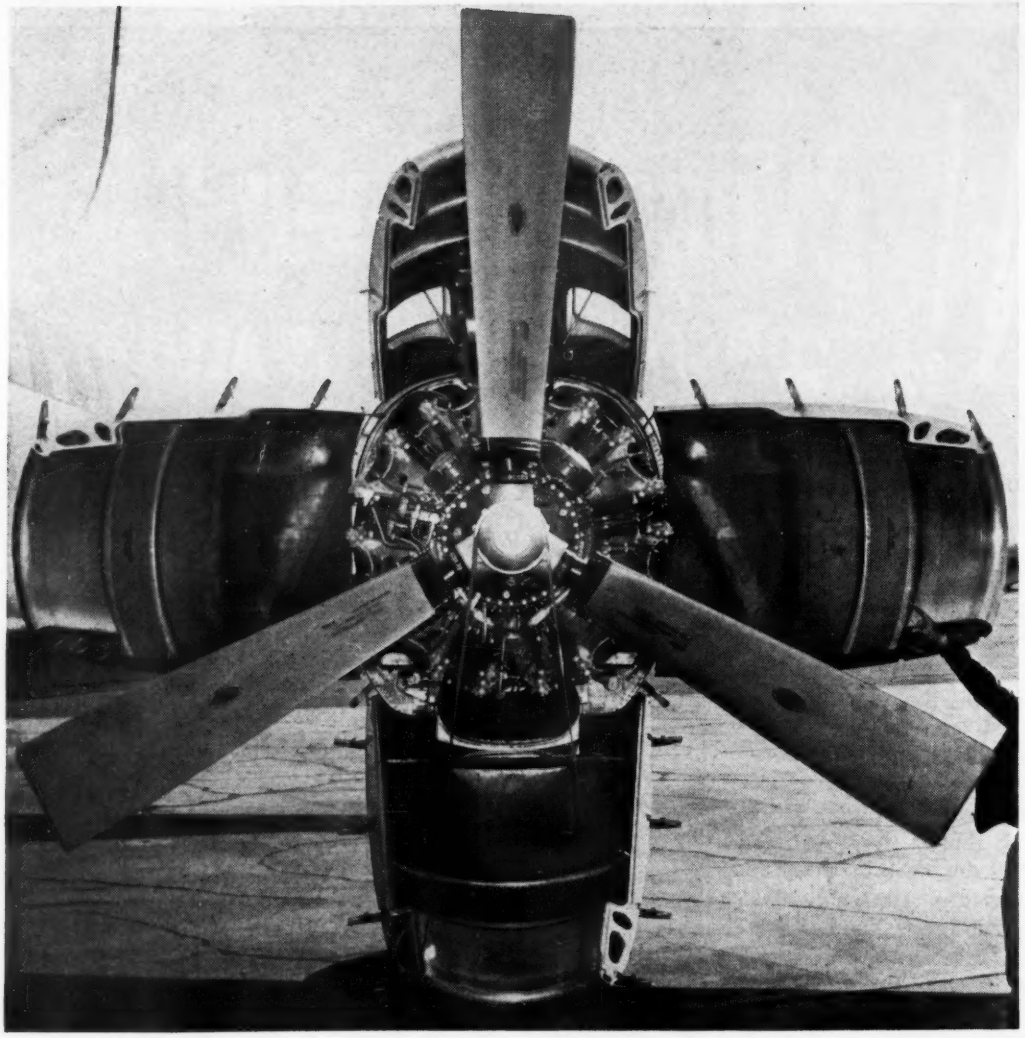
WILCO PRODUCTS INCLUDE: THERMOSTATIC BIMETAL—Wide temperature ranges, deflection rates and electrical resistivities. CONTACTS—Silver-Platinum-Tungsten-Alloys-Sintered Powder Metal. SILVER CLAD STEEL. JACKETED WIRE—Silver on Steel, Copper, Invar or other combinations requested. ROLLED GOLD PLATE AND WIRE NI-SPAN C New Constant Modulus Alloy. SPECIAL MATERIALS.

*Reg. Trade Mark The International Nickel Co., Inc.

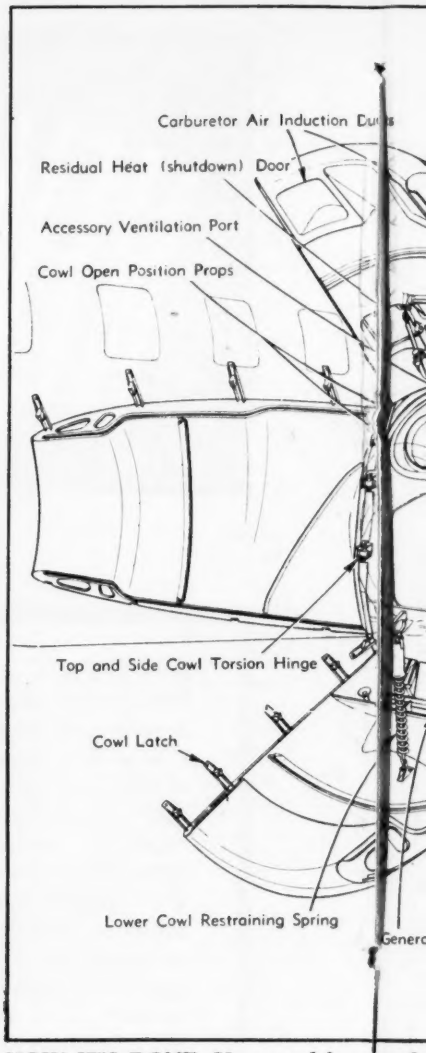
THE H. A. WILSON COMPANY

105 Chestnut Street, Newark 5, N. J. • *Branch Offices* Chicago, Detroit, Los Angeles, Providence

SPECIALISTS FOR 30 YEARS IN THE MANUFACTURE OF THERMOMETALS · ELECTRICAL CONTACTS · PRECIOUS METAL BIMETALLIC PRODUCTS

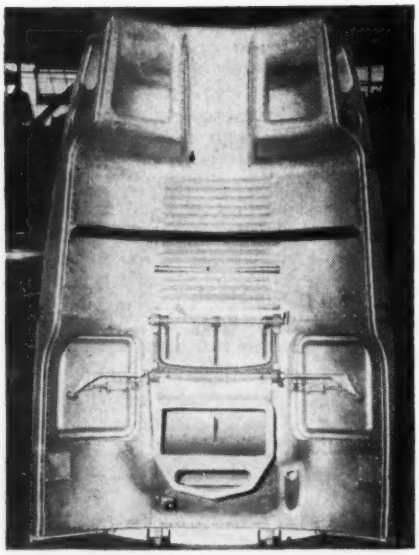


NEW WAY: Each panel of cowling can be opened individually, bottom and side segments spread out 60 deg., top 75 deg. Engine is exposed from prop to firewall, to which cowl panels are attached.



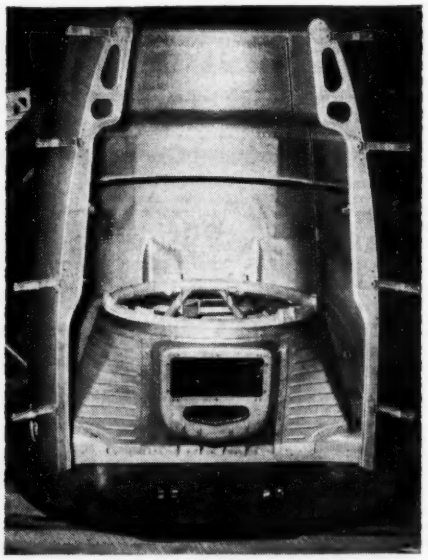
HOW IT'S DONE: Upper and lower panels second and third latches is only contac with

Modern Cowl Design Saves Operators Time a

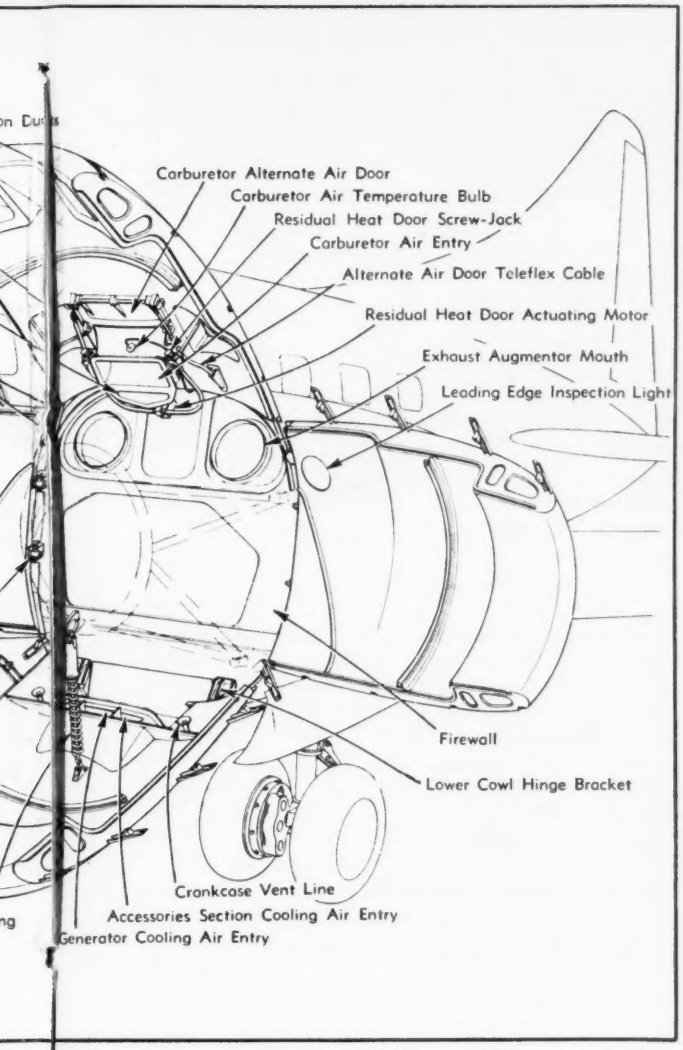


TOP PANEL: Torque tube to operate residual heat doors (l. to r. at bottom) has been replaced with screwjacks (see sketch).

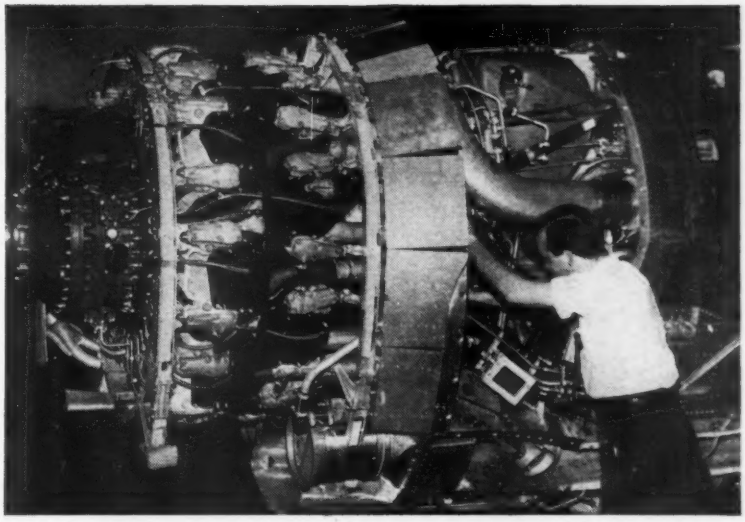
COWL BOTTOM: Built in is flush scoop to oil cooler. Accessory air is picked up by boundary layer slit in duct upper surface.



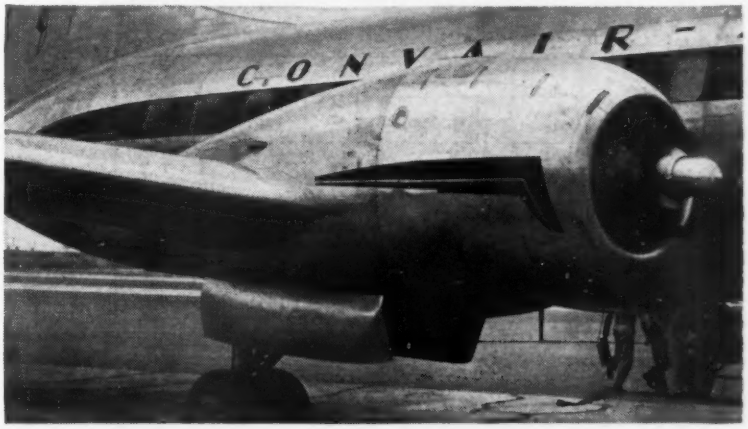
TOP PANEL REMOVED: Shown are mount and accessory shroud. Rectangle is carburetor air inlet; accessory outlet below.



lower panels carry cowl accessory installations. Rubber strip between cowl contact with engine baffle and minimizes vibration.



OLD WAY: Usual cowl requires section-by-section removal to give accessibility comparable to orange-peel. Even then, flaps are bogey.



RESULT: Smooth, clean lines of new nacelle are apparent. Latches between cowl segments are flush. Conventional flaps are absent.

ne and Expense

Power plant wide open for ground servicing without removing cowl. Minimum vibration, built-in ducts featured.

Striving to offer airline customers savings in expense and time to make possible greater utilization of the airplane, Consolidated Vultee Aircraft Corp. presents in the design of the "orange-peel" nacelle of the Convair-Liner an outstanding maintenance and servicing aid.

While various features of the nacelle have been used before, the Convair cowling incorporates all in one design offering quick and complete engine accessibility. A four-panel, full-cantilever structure, it holds vibration to a minimum. Ducting for the power section installations is built in the nacelle shell, so that when this cowl is opened even the ducting is out of the field of work of the mechanic.

► **To reduce vibration,** each panel is mounted on rubber bushings at firewall hinge points, and distortion of these rubber mounts (except those for the lower panel) slows panel movement during closure.

Clearance of $\frac{3}{8}$ in. between engine and cowling is maintained, except for a resilient rubber air seal resting on the engine baffle. Seal deflects $\frac{1}{8}$ in. with engine cold, and baffle expansion plus air pressure affords effective closure during engine operation.

Other seals between individual panels are held in metal retaining strips by a $\frac{1}{4}$-in. hard rubber core.

► **Cowling is fastened** in closed position with trunk-type latches. Panels are drawn together by an over-center device (adjustable to compensate for manufacturing tolerances and wear), and additional cam action pushes spring-loaded shear pin of one panel into adjacent panel for alignment. Latch handle is double-locked via Camloc fastener.

► **Short braces** support top and side panels in open position for ground servicing, since the hinge torsion load is not designed to exert sufficient force to hold these sections against high wind. Ball end of brace fits into firewall socket for easy application, and when stowed, brace is held against panel ribs by spring clip.

Bottom cowl panel rests on the ground and is protected by a stainless steel nose buffer plate.

Because bottom panel is the one most frequently removed, hinges on this section are fitted with quickly removable flat-head (clevis) pins secured with safety pins. Other panels are taken off by removal of bolts and nuts.

With panels open, all hinges except those on top section are exposed, and these are accessible through doors in a shelf between firewall and panel.

Cowl is fabricated by Rohr Aircraft Co., Chula Vista, Calif.

An installation somewhat similar to that of the Convair-Liner is standard on Lockheed's Constellations. Lockheed's cowling also consists of four panels but only the top and bottoms segments are hinged at the firewall. Side panels are hinged to the top section and may be opened upward to horizontal position with top panel closed, or they may be swung up with top panel and braced.

Fig. 1. Instrument board in test station

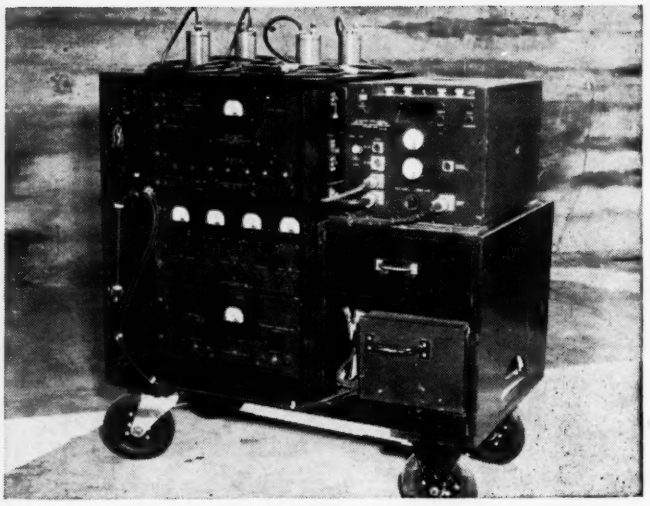


Fig. 2. Portable recording equipment

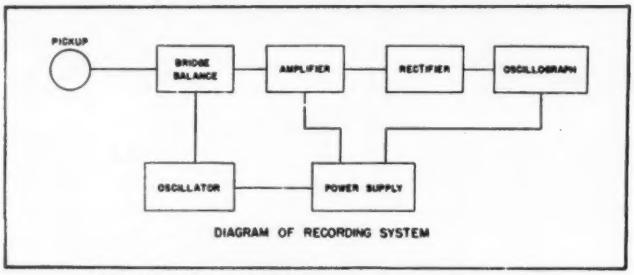


Fig. 3. Schematic diagram of recording system

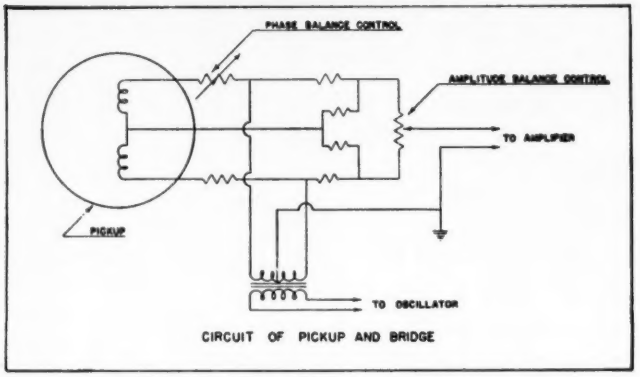


Fig. 4. Circuit of pickup and bridge

New Methods Developed For Evaluating Rocket Motors

Outlined are production tests used for solid and liquid propellant charges, and instrumentation employed in these investigations.

Facilities for testing rocket motors and complete power plants designed for auxiliary or main installations have been sorely taxed to keep abreast of current development. During World War II, rocket development was given sufficient attention to change it from the toy of enthusiastic experimenters to a scientific and dependable power source.

As requirements increasingly imposed more rigid specifications covering operating temperature ranges, higher performance, longer durations, lighter weights and broadened applications, scope necessarily expanded from mere production to development of improved units, new propellants, and new systems. Also, test requirements increased to include closer measurements of performance criteria. Testing techniques and instrumentation which have been developed by Aerojet Engineering Corp. are of special interest to many associated with this new field.

▶ **Production Testing**—With rocket motors, variables requiring measurement are governed by purpose of test and type of motor used. Production tests, usually made to establish performance for meeting contractual specifications covering thrust level, total impulse, propellant consumption, and ignition lag, generally require measurement of comparatively few variables. In development testing a new unit, or a new propellant formulation, designers must have additional data—heat transfer, pressures, ignition characteristics, transients, vibration, accelerations, etc.—to establish basis for satisfactory final design. Type of motor, whether it utilizes a liquid or solid propellant, further defines variables to be measured.

• **Solid Propellant Units**—Standard JATO unit is produced in batches, a batch consisting of total motors cast from one mix of propellant. Testing of single units establishes performance of batches. Latest testing practice is to select motors from each batch, to be static test fired at ambient temperature (60 deg. F.), and at 10 deg. F. above and below guaranteed limits (140 and —10 F.). Data taken are thrust, duration, ignition lag, chamber pressure, and weight of propellant burned. Unit fired at 60 deg. F. establishes nozzle size for batch, to bring thrust levels within specified range. Units fired at —10 deg and 140 deg. F. with established size nozzle verifies ability of batch to operate within maximum and minimum thrust levels.

Use of standard strip chart pressure recorders has proved satisfactory to record this data. Paper speed of standard recorders is increased to ½ in./sec. to provide reasonable length test record. Fig. 1 shows instrument and control panel used.

Propellant burned is determined by weight of unit before and after firing. Test gage is used between each run to calibrate recorders. Overall accuracy of system is well within ±3% range set for this type of testing. System provides immediate records of firing with minimum data reduction.

• **Liquid Propellant Units**—Production testing of liquid propellant units is to establish acceptable performance of unit itself and additional identical units. To reduce number of tests, latest trends are to hydraulically flow-test each unit but fire test only a few. If production unit is flow tested and adjusted for proper mixture ratio, it is expected to meet requirements in actual firing.

If a complete liquid unit, including tanks, is tested, weight of propellants required to

fill is measured. If rocket motor is tested, weight of propellant is determined by that used over duration of test.

On the assumption that a liquid motor produced in quantities is result of proven development, necessary data can be readily obtained on same type of equipment as described for solid JATO units.

► **Testing Instrumentation**—In early rocket development, photographs were made, at regular intervals, of a panel which mounted hydraulic gages and other instruments. This was unsatisfactory for recording transients and rapid sequence of events needed to enable making an accurate analysis. Accordingly, equipment was selected for continuous recording. Several types of systems were considered, including direct inking or stylus recorders; cathode-ray photography; and galvanometer oscillographs.

Inking or stylus recorders can be inspected immediately after or during test, but they have low frequency response and high driving power requirements.

Cathode-ray photography has extremely high frequency response, but is not well adapted to multiple recording.

Galvanometer oscillographs have moderately high frequency response, and can record a large number of variables simultaneously. Another important advantage is that many variables may be recorded on galvanometer directly without amplifiers.

After thorough study it was decided that galvanometer type oscillographs, being the most versatile recording instrument, would best satisfy requirements.

► **Variables**—To check what occurs in a rocket motor, it is essential to record simultaneously all measurable significant variables.

With liquid propellant motors, it is desirable to record these variables with a time resolution of at least 1/200 sec.—motor thrust; combustion chamber pressure; propellant injector pressures; pressure drop in coolant coils; pressure in feed systems; chamber wall temperatures; propellant injector temperature; temperature rise in coolant coils; motion of propellant valves; time relationships of operation of switches and relays; rotating parts rpm.; rotating parts vibration; and propellant rate of flow.

Solid propellant rocket motors, because of their greater simplicity, require fewer measurements. These are motor thrust; combustion chamber pressure; ignitor pressure; wall temperature; flame temperature; and ignitor delay. Additional instrumentation is required in special tests.

Data are recorded on multi-element galvanometer type oscillographs. These use 8-in. wide sensitized paper and can record traces of 14 galvanometers. Other equipment includes carrier oscillators, carrier amplifiers, power supplies, vibration pickups, pressure pickups, and accelerometers.

Fig. 2 shows arrangement of electronic equipment used with pickups. Each pickup has its own bridge balance circuit, amplifier, rectifier, and galvanometer. Fig. 3 depicts recording equipment mounted in cart.

Essential circuit of pickup and bridge combination is seen in Fig. 4. Two inductance coils in pickup form two arms of bridge. Initial inductance and phase unbalance are corrected by the two controls.

► **Oscillograph Applications**—When using pressure pickup for recording pressure transients, it is connected to point of measurement with short fluid-filled line to prevent distortion of transients. Differential pressures can be measured with one pickup, where pressure sensitive element gaging one pressure operates in the atmosphere of the second pressure so that the armature is proportional to differential pressure.

Thrust has been most commonly measured by mounting motor on a movable stand and applying its reaction to an hydraulic piston. A standard pickup is used to measure hydraulic pressure. Fig. 5 shows experimental unit mounted on parallelogram stand for test. In this system, there is slight movement of stand because of leakage of fluid past piston, expansion of lines, etc. Any movement of stand affects accuracy of measurements, hence electronic force pickups of the reluctance type had to be developed to satisfy requirements of high sensitivity and accuracy, rapid response, with total movements of less than .005 in.

Temperatures are generally measured with thermocouples, and thermal e.m.f's. are recorded on oscillograph. When iron-constantan thermocouples are used, sensitivity of about 60 deg. F./in. deflection on recorder is obtained. For measuring flame temperatures, platinum-platinum rhodium thermocouples are used.

► **Applications**—Rate of opening of pneumatically operated valve is recorded by connecting movable valve stem by cable to pulley on shaft of a potentiometer, a spring maintaining cable tension.

Operation of control switches and relays are indicated on oscillograph record by connecting each controlling voltage to a galvanometer, through high resistance. Several controlling circuits may be connected to same galvanometer through varied resistor values. Each operation may then be identified by size of step in oscillograph. A controlling voltage may also be connected to a galvanometer through a condenser, in which case the trace is only momentarily deflected from normal position.

In rocket motor systems using turbo-driven propellant feed pumps it is not only necessary to record more temperatures and pressures but turbine speed must also be obtained on same record. This is done by mounting a small permanent magnet on turbine shaft, and a fixed pickup coil near magnet is attached to a galvanometer. Each revolution of shaft is indicated and speed may be determined at any time.

Vibration may be measured with carrier type pickups in two ways. If system mechanical resonant frequency is higher than any frequency to be measured, voltage output of bridge is proportional to acceleration. If system resonant frequency is lower than any frequency to be measured, output is proportional to pickup displacement.

Instantaneous rate of flow of liquid propellants may also be recorded on the oscillograph. Fluid is passed through a variable area tapered metering tube. Moving float in metering tube is attached to an armature so that inductance of pair of pickup coils varies with the flow rate.

Routine production control tests are made on ignitors used in solid propellant units. Ignitor is fired in chamber having same free volume and nozzle area as that above propellant surface of motor. Instant of application of current to initiator, time of burnout of the hot wire, and chamber pressure are recorded on the oscillograph.

► **Recording Errors**—Probable error in data obtained with oscillographic recording system described is within ±2%. These accuracies are controlled by stability of amplifiers used to increase output voltages of pickups. A newer system employing higher output pickups and a discriminator which eliminates need for amplification promises accuracy improvement to ±1%.

Instrumentation will continue to be dictated by the end use of data. No single system of testing facilities and techniques for rocket development will answer all requirements of this rapidly expanding field. Facilities will have to be modified depending upon type of propellant and scale of units.

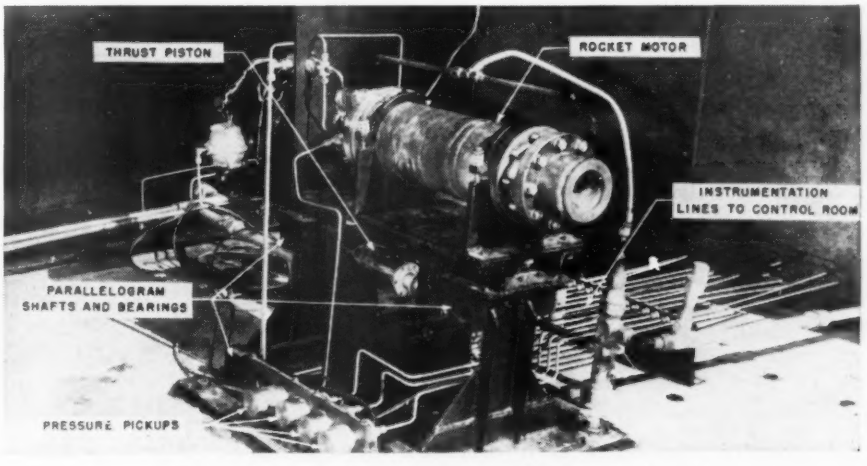
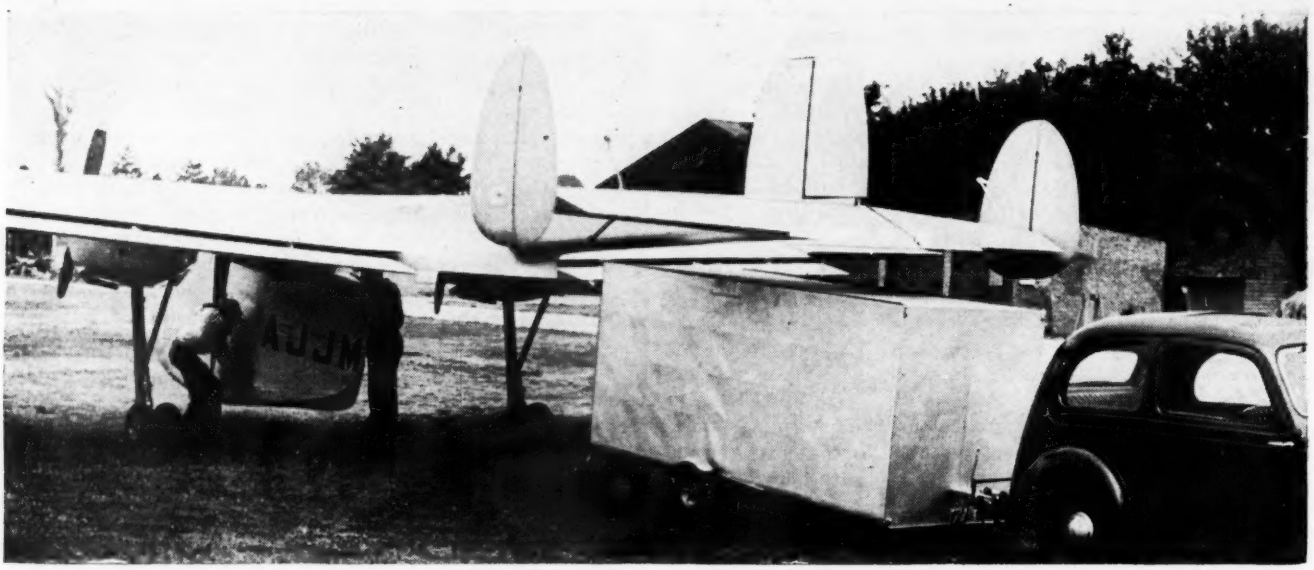


Fig. 5. Experimental motor on parallelogram test stand



Separated from craft, the freight container—equipped with wheels and tow bar—becomes a cargo trailer to its ultimate destination.

Miles' New M. 68 Has Roadable Cargo-Hold

Designed for quick turnabout facility, British light air-freighter has fuselage readily detachable for use as trailer.

The much-proposed feature of combination fuselage freight-hold and road trailer has been simply and ingeniously achieved in the new Miles M. 68, which recently made its first flight. To minimize ground handling and to speed shipments of air cargo, this British design injects additional utility into the basic configuration of its predecessor—the one-ton-capacity fixed-fuselage Miles Aerovan.

▶ **Fuselage-Trailer Details** – Essentially, the M. 68 is an airframe serving as a chassis for a detachable container 10 ft. long by 4½ ft. square, accommodating a 1,600-lb. payload for a still air range of 400 mi. at a cruising speed of 130 mph. Location of the unit is between cabin and special aft fuselage fairing. Use-flexibility of this container installation may be further enhanced by varying the unit's dimensions and internal arrangement to meet specific customer requirements in various industries. In addition to conventional cargo haulage, adaption is seen for transportation of refrigerated perishables, and for agricultural uses such as lime dusting and pest control.

● **Roadability Feature**—After fitting with removable wheels for roadability, the freight container is disconnected from the plane, and with tow bar is readied for use as a trailer for transportation to ultimate destination. For quick turnabout facility, the craft may immediately be fitted with another loaded container or may fly without cargo compartment by attaching rear fairing directly behind cabin.

▶ **Operational Advantages**—Pointing up the value of air haulage over surface transportation, the design is intended to overcome difficulties entailed in providing protection against excessive handling of special cargo and close control of temperature and humidity conditions.

Thus, with the detachable freight compartment, contents need be loaded and unloaded only once during the overall haul—from point of origin to ultimate destination.

Weigh-in is quickly made by running the container over a floor scale before attachment to craft. Center of gravity check is simply made by observing the balance of the container on its wheels.

This procedure is in sharp contrast with existing air transport practice—trucking to airport, unloading, weighing, loading on ramp truck for carrying to craft, loading into craft, and checking for C. G. position; then more handling at destination airport.

Direct result of the M. 68 operational facility is to step up actual elapsed transit time. Expected by the manufacturer is a city-to-city (as distinguished from airport-to-airport) speed of about 100 mph.

▶ **Design Details**—Craft's fuel capacity is 100 gal., affording a maximum still air range of 800 mi. Wing span is 50 ft., length 36 ft. Main gear has twin wheels.

Power plants are four 100-hp. Blackburn Cirrus Minors. Number of units is apparently in keeping with the British trend of using more engines of low power rather than fewer engines of greater power.

This view of Miles M. 68 shows detachable freight-hold sandwiched between cabin structure and special aft fairing.

After cargo hold is detached, aft fairing is placed behind cabin, and craft is ready for un-freighted flight.

Cross Country Stressed in Novel Experimental Flight Course

Success of curriculum test may mean sweeping changes in private pilot instruction leading to plane sale revival.

By ALEXANDER McSURELY

A significant experimental flight training program opening this month at Ohio University, Athens, Ohio, will be closely watched by aviation educators throughout the country, as a test of new liberal ideas in teaching cross-country flying and emphasizing the utility of the airplane along with the ABCs of flight.

Developed in cooperation with third region CAA personnel, the flight training project will teach 150 students under a new curriculum, for moprasion with 150 others who will take standard private pilot flight examination, and in addition, will make a short triangular cross country flight to be checked by flight examiners stationed at all three airports who will observe elapsed time and proficiency in landings and take-offs.

▶ **New Curriculum**—The new curriculum is aimed at eventual elimination of such flight training practices as simulated forced landings, pylon eights, spins, and poweroff spot landings, and utilizing the time conserved in additional cross country training and strange field techniques. It has been set up in reply to a resolution voted at the CAA-state-regional clinic held in Chicago last spring calling for such an experimental course. (AVIATION NEWS, March 31).

The new plan provides for approximately 40 hours of instruction, divided into flight period assignments, flight instructor's explanations to student, and summary of objectives.

▶ **Improved Flying**—While the new teaching method is aimed primarily at improving cross country flying ability of the student, it is predicted that the course will at the same time improve the student's air technique and demonstrate that he is more capable than he would be under the standard flight course, of "thinking ahead of his plane."

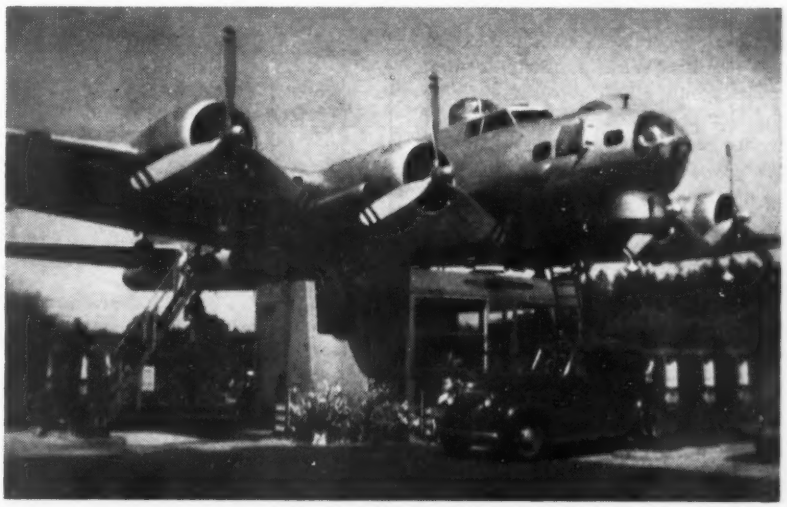
It is urged that the instructors treat stalls, spins, maximum coordination and other "air technique" flying, as extremely important and necessary for safety, but as merely incidental to normal cross country, and that the instructor teach flying as transportation, putting it "on a level with safe automobile operation."

In the first one-hour flight period, the student and instructor will make a cross-country flight to a strange field, rest there for the instructor to answer student's questions and practice straight and level flight and gentle turns on return flight. Second and third hours include air work of usual pre-solo type, with emphasis on the use of such maneuvers as rectangular course with traffic pattern, following section line with wind correction in cross country flying. Fourth and fifth hours call for cross countries to two other strange fields, making landings at the strange fields, and doing air work in their vicinity. Sixth and seventh periods call for similar cross countries, to the same fields, or different ones.

▶ **CAA Co-operates**—Charles E. Cox, Jr., assistant to the third region CAA administrator in charge of personal flying development, has been working closely with the Ohio University authorities in developing the experimental course, which is regarded as a liberal compromise between the advocates of complete abolition of flight instruction in simulated forced landings, pylon eights, spins, and poweroff spot landings, and the more conservative group which insists that all these must be stressed in the flight curriculum.

The experimental course, if it works out successfully, may revolutionize the flight training procedures now in use at flight schools throughout the country and indirectly stimulate personal plane sales.

It is pointed out that the trend in flight instruction since the pre-war civilian pilot training programs, and now in the post-war GI training courses, has been and now continues to be, one of instruction at the home airport except for required cross country flights. The new course, on the contrary emphasizes the cross country aspects, and the instructor is urged to utilize to the fullest his opportunities for teaching the student civil air regulations, meteorology, and navigation by practical demonstrations. The instructor is asked to use various types of fields, including all-way fields, fields with paved runways, one-strip fields, and teach the student how and where to taxi, how to approach a gas pit, and make practical suggestions about how to overcome the many present-day difficulties of personal plane travel.



ATTENTION-GETTER

Everyone seems to reap dividends from the odd use of this surplus B-17. Art Lacey, gas station owner of Milwaukee, Ore., near Portland, bought it and had it mounted above the pumps because, he says, he "always has been a great admirer of Boeing and its planes." It also attracts droves of customers who, while their cars are being serviced, can walk through the plane via a ramp. Lacey says that when he has earned his purchase price he will take out the pumps and turn the station over to the state as a monument. On the plane is mounted a plaque that reads: "This B-17 is dedicated to the men and women of the U. S. Armed Forces who served so valiantly during World War II."

Yingling Aircraft Inc., Wichita, uses factory-supplied replacement parts and factory-built jigs in its metal plane repair station. Above: An attempted takeoff on a road, between two trees, clipped the wings of this plane, being towed into the repair station. Other factory jigs are used to rebuild mauled-up aircraft.

Wichita Repair Base Uses Factory Methods

Specializing in repairs on metal aircraft and using, wherever possible factory assembly line methods to do the work, Yingling Aircraft, Inc., at Wichita is operating a repair, overhaul and servicing base which has been cited as a model of its type in the midwest.

Laurence Vanderlip, veteran aircraft service and repair specialist who directs the operation, says his crews can put any repairable wrecked metal airplane back in airworthy condition in one week's time.

Yingling specializes on Cessna planes, for which it has the Wichita distributorship, and is located only ½ mile across the airport from the Cessna Wichita plant. This gives the operator two major advantages. Any replacement parts needed are readily available and the operator has purchased regular jigs from the Cessna company so that it can give virtual equivalent of factory rebuilding on damaged Cessnas.

With more than 6,000 sq. ft. of working floor space for the repair base, the company can keep half a dozen or more plane repair jobs moving at one time. Damaged items such as tail assembly parts, wings, leading edges, cabin parts, cowlings, etc., usually can be replaced cheaper than they can be repaired, and in less time, Vanderlip reports. So the operator makes no effort to roll out or repair such parts if seriously damaged. The operator is prepared to go as far as 500 or 600 miles from Wichita to pickup a wrecked plane with a Yingling truck, but also is receiving repair work brought in from many parts of the country.

Two typical wrecked light planes which Yingling has repaired recently:

• The plane of a Colorado pilot, who landed in an open field and tried to taxi out into a road for takeoff. He sheared off both wings, broke the propeller, wrecked the cabin upholstery and damaged the instrument panel, bulkheads and other parts.

• A Cessna 140 which a student pilot rammed into a hedgerow. Repairs included: replacement of approximately two-thirds of the fuselage skin, repair or replacement of leading edges and tips of both wings, stabilizer, rudder, fin, landing gear bulkhead, center bulkhead, cabin sections, instrument panel, and side skins of cabin. Work on this plane required 49 hours, and total cost was approximately $1,200.

Yingling has undertaken a special project of replacing door posts on early 1946 model Cessnas. The job requires about 28-30 man-hours and a set price of $45 is charged, with the Cessna factory paying for the installation. After several hundred early 1946 Cessnas had been sold it was found that the doorposts were not sufficiently rigid, but a number of the planes with the original posts are still flying.

Luscombe Cuts Price $200 on Silvaire Plane

Luscombe Airplane Corp. announcement of a $200 slash in the list price of its popular "Silvaire Standard" makes it the first lightplane manufacturer to sell its product at a price lower than the prewar level. The cut reduces the two-place all-metal aircraft to $2,295 flyaway at the factory near Dallas, Texas.

The price reduction is a tangible result of simplified structure (Aviation Week, Sept. 1) and accompanying savings in tooling and production costs. L. H. P. Klotz, Luscombe president, states: "The reduction is being made to enable flying school operators to re-equip their flight lines with new and modern equipment before the advent of winter when the costs of operating old equipment run high."

New York Council Meets Oct. 6

New York State Aviation Council annual meeting in Rochester, N. Y., Oct. 6 and 7 will be patterned on the National Aviation Clinics held in Oklahoma City, President George W. Emerson said in fixing the dates. Announcements on the program will be made as soon as arrangements for it have been completed.

NEW TWIST FOR HILLER

Shown in flight is a small test helicopter which Stanley Hiller, Jr., says embraces the basic design of production model now under development by his United Helicopters, Inc. at Palo Alto, Cal. Most interesting aspect of the design is that it is his first single-rotor 'copter, and he apparently has shelved his co-axial rotor arrangement as too complex.

NEW CESSNA ACCESSORY

Cessna Aircraft Co., Wichita, has announced a newly developed wheel pants accessory specially designed for its vanadium steel spring landing gear. Constructed of heat-treated aluminum, the pants are designed so they will not shake loose or rattle, the manufacturer asserts, and will withstand landings in rough fields and high grass. Mudscrapers are fitted in the pants to prevent mud from clogging and locking the wheels. Offered as optional equipment on the Cessna 120 and 140 two-place planes the wheelpants are priced at $47.50.

Plan Color Cruise Route

Plans and route of the annual Michigan Aviation Color Cruise, Oct. 9-12, have been announced by Wayne J. Sheldon, air tour manager, Michigan department of aeronautics, Lansing.

Pilots will converge at St. Ignace on the morning of Oct. 9 for a boat trip to Les Chenaux island, returning for a beach barbecue and "Indian frolic" that evening. They will fly to L'Anse next morning to visit a logging camp, leaving Oct. 11 for Land O'Lakes, Wis., and Iron Mountain, Mich.

Air Seeding Deal

Interior Department has extended its experimental air-seeding of eroded lands to Idaho and Wyoming. The Bureau of Land Management of the Department has awarded an $87,500 contract to the International Seed Pellet Co., Phoenix, Ariz., for the seeding of 20,000 acres of denuded grazing land in central Wyoming and 30,000 acres in eastern Idaho. International's bid of $1.75 per acre was the only one received.

Students' Air Meet Slated

Students from more than 20 institutions in Washington, Oregon, California and Nevada will participate in a Pacific Coast inter-collegiate air meet at Livermore Naval Air Station Oct. 24. The meet will feature individual awards for 180 and 360 deg. spot landings, level and dive bombing, paper cutting, and barrier landing. Host will be University of California flying club, and latest Army and Navy craft will be exhibited.

BRIEFING FOR DEALERS AND DISTRIBUTORS

MILES GEMINI DEMONSTRATION—Complete with little niceties such as roller window blinds inside the cabin to shade the occupants from a too-friendly sun, the twin-engine four-place Miles Gemini now on demonstration in the United States offers American personal plane designers some food for thought, particularly in its single engine performance, slow-flying ability, speed, range, and adaptability to small fields. In a demonstration at Washington Airport carrying three persons including the writer, the airplane climbed at slightly over 32 mph. indicated, and then cruised at an indicated 130 mph. at 2,300 rpm.

Equipped with Continental 125 hp. engines and Aeromatic propellers, the export version of the Gemini will sell for around $16,000 to $18,000 with duty, etc. The demonstrator uses Cirrus Minor 100 hp. engines, which oddly enough are about 20 lb. heavier installed than the Continental 125s. It is expected therefore that the American export version with the Continentals may cruise at somewhere close to 150 mph. with a top speed over 160 mph. while still retaining the comfortable, slow-flying features. We have a prejudice against wood-structure airplanes and argued somewhat with the Miles representatives on this point, but they cited the use of cuprinol, a wood preservative, on the Gemini's internal fittings and pointed to the long life of a Miles Hawk of similar wood construction which came to Singapore six years before the outbreak of World War II and was used extensively during the war with little evidence of deterioration. Other interesting gadgets on the Gemini demonstrator: a spring-loaded hand release to extend the landing gear, by a simple pressure on a lever, in event the electric actuation should fail; a hand brake coordinated with rudder pedals so that brake is applied to whichever wheel the rudder pedal pressure indicates for turns, or both wheels if pressure is not applied; luminous tachometer gauges installed directly in the nacelles, at an angle so they are visible from the pilot's seat.

NEW MERCHANDISING POLICY—One of the sharpest criticisms of the ailing personal plane industry, which has been given publication, is the article "Personal Planes—Postwar Flop?" in the Sept. 19 issue of Tide, advertising magazine. "Nothing less than a major overhauling of goals, merchandising and advertising policies can rescue the sinking private plane business," the magazine declares. The Tide prescription for more sales calls for: additional training of 95 percent of all plane salesmen; new and radically different sales-plans; a better margin for dealers, and stabilization of the used plane market, so that dealers can use it to stimulate new plane sales, by providing decent trade-in allowances.

PRATT & WHITNEY DISTRIBUTOR—Appointment of Airwork Corp., Millville, N. J., as a Pratt & Whitney aircraft engine distributor for New Jersey (exclusive of Union County), Delaware, Maryland, Pennsylvania, Virginia, West Virginia and District of Columbia, and as an approved overhaul shop, has been announced. The company has been operating since Nov. 1946 as an overhaul shop, on the former Millville Army Air Base, which has four 5,200 ft. concrete runways, range station and CAA weather facilities. The shop has modern equipment and machinery, with test cells instrumented to give a test equivalent to factory tests. Airwork officers, all former AAF officers, are Francis L. Hine, president and treasurer; Josiah V. Thompson, executive vice president; Thomas Dickson, Jr., vice president-operations; Paul D. Meyers, vice president-sales, and John S. Gillespie, secretary.

STATE AVIATION MAPS—The best and most complete job yet done by any state, in preparing a state aeronautical chart, is that which William L. Anderson, Pennsylvania areonautics director, has just produced for the Keystone State. Pennsylvania, incidentally, is way ahead among the states as to airmarking, with a total of 709 markers shown on the map. Anderson has used as the basis for his map, the overlapping CAA sectional charts which include parts of his state, so that the state map is the same scale as sectional charts, and readily used by the pilot. Back of the map carries: a list of 152 fire towers, all of which are numbered, in numbers visible from the air, showing the latitude and longitude of each; and a list of more than 200 airports in the state, showing location, facilities, etc. of each. The firetower numbering idea is an excellent plan for augmenting the number of existing air markers in any state that has firetowers, and probably will be followed by other states. Idaho, Wisconsin and Missouri are among other states that have recently issued state aviation maps, but we believe the Pennsylvania map is the most complete and useful, to a pilot. While the present crop of pilots are trained to use sectional charts, there are possibilities of state areonautical charts, if properly and uniformly prepared, superseding the sectionals. The more detail in a map, the better chance the inexperienced pilot has of keeping on course; and presumably a state map of manageable size, compiled from local sources of information, would have more such detail than the sectionals.

CROP DUSTING—Bill Marsh, Phoenix, Ariz. operator, sees aerial crop dusting as a saving factor in the aircraft operations picture. While sales and service, and training too, are not doing well, he has seen a steady increase in demand for crop dusting and regards it as the most hopeful branch of the aviation operations business.

—ALEXANDER McSURELY

Some Short jottings for airline operators, charter companies, and V.I.P.s

Presenting the SEALAND...

Passengers *will praise the Sealand's attractively designed interior, finished in washable leather fabric, its comfortable seating and wide windows*

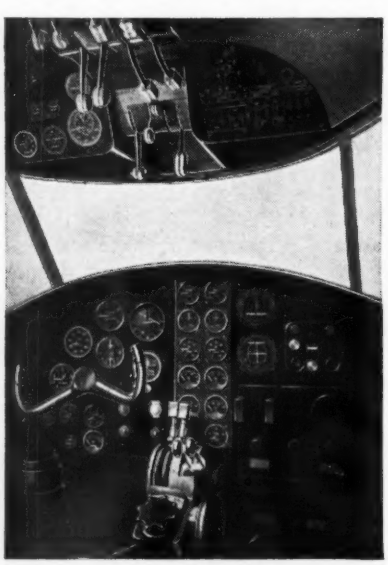
You've only got to ask

The Sealand, new 5/8-seater amphibian, is now coming off Short's production line. It's worthy of your attention wherever you are operating and whatever your aviation purpose. For the Sealand is the most adaptable, universally useful aircraft of its type ever designed. It's just the thing for charter companies and feeder lines. It is readily converted into a freighter, an ambulance, a mobile showroom, or — equipped as an office — a business man's transport. And it's as light and easy to handle on land as on water.

Getting down to it

Let's have a few estimated performance figures. The Sealand, at maximum economic cruising power — altitude 5,800 ft. — does 174 m.p.h. Its range, at 127 m.p.h., is 776 statute miles with full tanks (120 gallons) and 690 lbs. of freight. With less fuel (78 gallons) it will carry 1,000 lbs. of payload, which is roughly equivalent to five passengers and baggage, a range of 484 miles.

Take-off distance is only 525 yds. (in 28 seconds) from water; 370 yds. from land. Landing speed is 69 m.p.h., and service ceiling is 21,600 ft.



★

The Sealand *is reliably powered with two 330-h.p. D.H. Gipsy 70 engines. The cockpit is neatly and effectively laid out, and affords an exceptionally wide field of vision.*

Where breeding counts

Of course, great care has been taken to ensure that all Air Registration Board safety requirements have been met, and that airworthiness is unimpaired if one engine fails. Why "of course"? Because for nearly 40 years Shorts have been designing and building their famous family of flying boats. The Sealand thus has a proud ancestry. We suggest that, if you would care to operate this new amphibian, you write for complete details and tell us your requirements.

Shorts *Established 1908. The first manufacturers of aircraft in the world*

SHORT BROS. (ROCHESTER & BEDFORD) LTD., ROCHESTER, KENT, ENGLAND
SHORT & HARLAND LTD., BELFAST, NORTHERN IRELAND

COHU AT AIR POLICY HEARING

Testifying during the first week's public hearings by the President's Air Policy Commission in Washington, TWA President LaMotte T. Cohu, left, agreed with other top airline executives that the government should underwrite the cost of developing new transport planes as an investment in national defense. Questioning Cohu are George P. Baker, professor of transportation at Harvard Graduate School of Business Administration and former CAB member, and Thomas K. Finletter, right, New York attorney and chairman of the commission. Baker and Finletter have handled most of the witness interrogation for the five-man policy group, which also includes Henry Ford II, Palmer Hoyt, publisher of the Denver Post, and Arthur Whiteside, president of Dun and Bradstreet.

Airlines Urge Speedy Mail Pay Relief, Shelving of Route Cases

Rickenbacker, Cohu, Monro, Brophy, Patterson, Slick testify as hearings continue before President's Air Policy Commission.

By CHARLES ADAMS

With a record industry-wide deficit in 1947 rapidly becoming a dismal certainty, the airlines have emphasized to the President's Air Policy Commission the urgent need for CAB to get down to brass tacks in bolstering the carriers against further crippling losses this winter.

Suggestions by Air Transport Association president Emory S. Land and American Airlines board chairman C. R. Smith that a moratorium be placed on further route expansion (AVIATION WEEK, Sept. 22) were not endorsed unanimously by other executives testifying before the commission. But all agreed that setting new and higher rates of airmail compensation is of paramount importance to the industry and called on CAB to tackle first things first.

▶ **No Subsidy Seen**—Witnesses declared that far from receiving a subsidy, the airlines on many routes are paid less than a compensatory rate for mail carriage. Gerald B. Brophy, specialist in aviation law, stated that mail pay in the fiscal year ended June 30, 1947, represented only 6.49 percent of the domestic airlines' total operating revenue. This compares with 10.55 percent in fiscal 1946, 18.53 percent in fiscal 1945, 20.91 percent in fiscal 1944, 29.4 percent in fiscal 1940, and 36.72 percent in fiscal 1938.

CAB should recognize its error in fixing airmail rates too low in the postwar period, Brophy declared. He said that retroactive increases to rectify Board mistakes are both justifiable and legal under the Civil Aeronautics Act.

▶ **Comeback Difficult**—Brophy pointed out that it will take Chicago & Southern, Colonial, Capital (PCA), TWA and Western Air Lines four and one-half or more years merely to recoup their 1946 losses if they start making money immediately at the record rate of fiscal 1945, when the industry as a whole netted over $43,000,000. This does not take into account the further losses suffered by these same companies in 1947.

Following the certificated carriers' plea for immediate action on higher mail rates, the uncertificated airfreight lines and airfreight forwarders told the commission that airmail subsidies already are being used to finance a cargo rate war. Earl Slick, president of Slick Airways, the nation's largest all-cargo carrier, asserted that PCA, one of four certificated lines proposing to carry freight at rates down to 12 cents a ton mile, has been getting over $5 a ton mile to carry mail.

▶ **Tariff Suspension Asked**—Slick said even the 45 cents a ton mile "service" rate paid the major trunklines is part subsidy and restated his willingness to carry mail at 18 cents a ton mile. He declared that CAB has power to stop an imminent rate war by suspending the certificated airlines' proposed new rates. "If the Board allows these freight tariffs to go into effect, I doubt very much if we will be in business six months from now."

Meanwhile, the pot continued to boil among the certificated carriers on the advisability of joining Northwest Airlines in boosting one-way domestic passenger fares 10 percent (AVIATION WEEK, Sept. 22). T. E. Braniff, president of Braniff Airways, asserted that passenger fares as well as mail pay must be increased if the industry is to remain financially healthy. United Air Lines president W. A. Patterson, who is also leaning toward higher passenger fares, said no mail rate adjustment for the larger carriers can by itself solve the present problem without reaching exorbitant proportions.

▶ **Against Moratorium**—PCA president C. Bedell Monro told the commission that the industry is selling its product below cost. He said a ten percent passenger fare increase probably would help all the airlines, pointing out that his company had opposed the rate cut in 1945. A moratorium on new route cases would not be advisable at this time, Monro declared.

TWA president Lamotte T. Cohu and Eastern Air Lines president E. V. Rickenbacker took a gloomy view of the feeder-line experiment. Feeders, according to Rickenbacker, probably never will be able to stand on their own feet with normal mail pay and are not contributing anything to the country. "Under 100 miles between stops, automobiles can furnish transportation better than planes."

▶ **Delays Hit**—Cohu severely criticized CAB's delay on mail rate cases. He suggested that the board take a breathing spell on new route proceedings and use its

staff to expedite for higher mail pay.

Both Cohu and Rickenbacker emphasized that the trunklines' current mail pay of 45 cents a ton mile is an inadequate service rate in view of higher costs. The EAL president asked that CAB differentiate between the service charge and subsidy in setting rates for all carriers in the future.

► **Policy Wrong**—Rickenbacker lashed out at CAB's past policy of "breaking the big fellow by giving the little fellow a chance." He specifically hit extension of PCA, Colonial, Western and Northeast during recent years and said the board had yielded to need "based on inability to do a job."

If CAB grants a certificate and the operator proves incapable of making a go of his routes, the franchise should be withdrawn, Rickenbacker emphasized. He added that sooner or later there will be an evolution in which a comparatively small number of carriers will survive domestically. "It would be advisable to abandon some routes, but I doubt if grass roots pressure would permit it."

► **Too Much Competition**—Rickenbacker agreed with other airline executives that the Civil Aeronautics Act is a good statute, but declared flatly that CAB's judgment has been bad. "There's too much competition today, so we're all in trouble and losing money. Other carriers are in worse difficulty than Eastern, but I can't long remain the good apple in a barrel of bad ones."

Uncertificated passenger carriers, in Rickenbacker's opinion, would not last six months if they had to comply with all the safety and economic regulations affecting certificated operations and if they had to pay full price for their surplus equipment. The EAL president said many nonscheduled lines are public hazards, adding that passengers usually do not know they are riding with a company "whose radio is nil, pilot pay is nil and weather information poor."

► **Freight Prospects**—"I don't believe we or anybody else will make money out of freight for the next five years," Rickenbacker stated. He emphasized that he doesn't do business like other carriers who have cut their cargo rates to 12 cents a ton mile, asserting that such action "doesn't make sense."

"The regular airlines will be able to get the equipment they need for the next few years without government aid, but they cannot afford the development cost of new type aircraft." The government, according to Rickenbacker, should bear the entire cost of new designs, including jet transports.

► **Transport Reserve**—He suggested that the military keep up to 500 planes in a transport reserve. As the airline industry could use them, it would buy the craft and the military would replace them with new ships.

Rickenbacker stated he was afraid it would be necessary to raise fares in some places, although he would like to cut them because of the long-term effect. Eastern, he declared, wants to hold the price line as long as possible.

Lost Baggage

The airlines, which for years have been accused of maintaining a baggage-losing concession, have compiled statistical proof that they keep a sharper eye on their customers' baggage than do the passengers themselves. Actually, according to the Air Transport Association, the number of bags checked on the scheduled airlines but never claimed by the passengers is greater than the number of bags reported lost.

During July, when 1,459,593 pieces of baggage were checked on 14 domestic carriers, 118 bags were reported as unclaimed and 113 were reported lost. Of the 113 reported lost, 59 were recovered by the end of the month, leaving a baggage mortality rate of 3.7 per 100,000. Only 37 of the 113 lost bags went astray in interline transit.

Sabena Inaugurates DC-6 Sleeper Service

First Douglas DC-6 sleeper service will be inaugurated by Sabena Belgian Airlines between New York and Brussels Oct. 11. Sabena announces that flights with the 26-berth equipment will be scheduled for a speed of 290 mph. over the 3,681 mi. route. The line has taken delivery on three DC-6s and is the first foreign airline to receive them.

Extra charges for berths will be $115 for for an upper (one way) and $130 for a lower. Seats will be available for passengers not desiring berth accommodations.

Cleveland's Helicopter Service to be Delayed

Cleveland will not receive service from its recently-authorized passenger helicopter operation until next spring at the earliest, according to officials of Yellow Cab Co., which was granted routes in Cab's Great Lakes Area decision this month (AVIATION WEEK, Sept. 15).

In view of higher rates made necessary by increased equipment and operating costs, the company wants time to re-survey traffic potentials over its two links extending from Cleveland Municipal Airport to points in the city. Yellow Cab's option to purchase Sikorsky S-51s at about $50,000 has expired, and the price tag on the four-place craft has now risen to $70,000.

Seeks Copter Routes

Air Commuting, Inc., New York, has asked CAB for a certificate to operate 334 miles of helicopter routes in the New York metropolitan area.

PAA Appoints Norris To Latin American Post

Porter Norris, Pan American Airways district sales manager at Miami, has been named traffic manager of PAA's Latin American division. He succeeds John E. Muhlfeld, who recently became general sales manager for the entire Pan American System (AVIATION WEEK, Sept. 22).

In his new post, Norris will have charge of placing 20 twin-engine Convair-liners in service on shorter Latin American routes this fall and winter. First of the new Convairs was slated to be delivered late this month.

Norris

Michaelis

Meanwhile, Sabena, Belgian Airline, announced appointment of Lansing Michaelis, as sales promotion manager in New York. Michaelis, who was formerly with Air France and Scandinavian Airlines System, succeeds Shaun Mahoney.

Other personnel developments:

● **American**—John A. O'Donnell has been appointed superintendent of the industrial safety branch of the operations analysis division, succeeding Walter T. Johnson, who has resigned. L. A. Sauter, former director of stores, has been named director of surplus sales. James T. Lynch succeeds Sauter as director of stores.

● **American Overseas**—Joseph D. Ryle has become European director of public relations, succeeding W. Holden White, who resigned because of ill health.

● **Capital**—J. Raymond Bell, former director of advertising and public relations for PCA, has joined the executive staff of Donahue & Coe, Inc., New York advertising firm.

● **National**—Joseph M. Jones, New Orleans attorney, has been named to the board of directors.

● **Panagra**—William D. Carter has become public relations manager, and Louis F. Czufin has been named advertising manager.

● **TWA**—Otis F. Bryan, for the past year vice president and general manager of the carrier's international division, has been appointed to the newly-created post of vice-president operations—international. He will have headquarters at Wilmington, Del., and exercise administrative control over all TWA activities at New Castle County Airport, Wilmington.

● **Transocean**—Roger Q. Williams has become director of training.

● **Western**—Roy Backman, formerly director of general sales, has been named general traffic manager, succeeding Arthur F. Kelly, who recently became assistant to the president. Kenneth E. Allen, public relations director, has become director of publicity and advertising.

● **General Electric**—Waverly A. Reeves, pioneer turbo charger expert, retired after 43 years service. He was associated with the late Dr. Sanford Moss.

American Airlines–ALPA Dispute Still Deadlocked

First test of a system-wide airline pilot screening program is currently deadlocked in a dispute between American Airlines and the Air Line Pilots Association.

The dispute concerns American Airlines' Ardmore (Okla.) training school program whereby co-pilots and captains are assigned from their regular line duties for the company equivalent of a CAA air transport rating check. Four of the first six pilots sent to Ardmore last March were dropped from the Airline, and a total of 8 out of 48 pilots (5 co-pilots and three captains) who went through the Ardmore programs have been eliminated. All of these pilots has passed a CAA check for an air transport rating within a year prior to the time of their arrival.

Air Line Pilots Association has pressed two group and four individual grievance cases arising out of the Ardmore program which it terms "the largest and most significant grievances cases ever faced by pilots." Hearings have been held on these cases since last July, and they are now deadlocked in the final American Airlines pilots system board of adjustment. Unless the deadlock is broken at a meeting scheduled for this week, the dispute will go to a Federal arbitrator under provisions of the Railway Labor Act.

The airline claims that a thorough recheck of all pilot personnel was necessary during the post-war period to re-establish the high pilot proficiency standards of pre-war years. Pilots complaints are that the screening program upsets the traditional pilot-company arrangements on weeding out incompetent pilots and that men sent to Ardmore, particularly co-pilots, were given no opportunity to prepare for the check tests. The future of the screening test system may lie in the decision that is reached.

Revenue Magnets

Seventy percent of the revenue from the three airports in the Port of New York Authority's proposed chain of three metropolitan fields will come from consumer concessions, and only 30 percent from landing fees and oil and gas concessions under plans now being developed.

Howard S. Cullman, chairman of the Port of New York Authority, said Idlewild Airport will be modeled after Grand Central Terminal "where you can't spend 20 minutes without buying something." In addition to a theater, swimming pool and bowling alleys, Idlewild is to have a 200-room hotel. Newark Airport also would become a large recreational area, with roller skating and dancing concessions. LaGuardia Field's present service facilities would be improved.

SHORTLINES

▶ **American**—Has replaced its last DC-3s on direct coast-to-coast flights with four-engine craft. Carrier hopes to retire all DC-3s from short-haul operations by next spring, substituting new Convair-liners.

▶ **American Overseas**—Reports a 98.4 percent adherence to published schedules during the first eight months of 1947 when it operated 1,383 flights between the U. S. and Europe carrying 46,012 passengers, 1,144,572 lb. of cargo and 707,259 lb. of mail. AOA made of record 231 North Atlantic crossings in August.

▶ **Delta**—August revenue passenger miles increased 10 percent and airfrieight tonnage 48 percent over July. Load factor in August was 60.45 percent, up 5.75 over July.

▶ **Eastern**—Plans to inaugurate service to Danville, Va., around Oct. 1 and to Anderson, S. C., about Oct. 15 on AM 5.

▶ **Florida Airways**—Passenger miles flown in August were up 30 percent over July. Carrier completed 99.8 percent of its scheduled miles last month.

▶ **National**—Was slated to receive its third 58-passenger DC-6 last week.

▶ **Pan American**—Has begun weekly cargo flights from New York to Brussels and Frankfurt, Germany.

▶ **Pioneer**—Has received CAB authorization to issue air travel credit cards.

▶ **Southwest Airways**—During August carried a record 11,302 passengers compared to 10,683 in July. Carrier's total of 2,081,067 passenger miles last month represented the first time a feeder surpassed the two million figure.

▶ **Swissair**—The Swiss Air Transport Co., which was slated to make its first Geneva-New York flight this month, expects to make two additional trans-Atlantic round-trips in October. Effective in January, the carrier will operate one DC-4 round-trip monthly from Geneva to New York via Shannon, Eire, and Gander, Newfoundland. Swissair has appointed KLM as its general agent in the U. S., Canada and Mexico.

▶ **Trans-Canada**—This week will begin serving Shannon, Eire, on its Montreal-London route.

▶ **TWA**—Reports carrying a larger average payload per flight during the first eight months of 1947 than any competing international airline either U. S. or foreign-owned. The carrier made 487 trips between January and Aug. 30 with an average payload of 8,255 lb. per flight, nearly 1,500 lb. above the nearest competing U. S. flag line and 480 lb. higher than the top foreign company. Average number of passengers on each TWA trans-Atlantic flight was 28.8, exceeding American Overseas Airlines' and Pan American Airways' average load by six to eight passengers.

Western Asks Withdrawal Of Route Applications

Western Air Lines has asked CAB permission to withdraw all pending route applications which sought to extend the carrier's system beyond the intermountain-Pacific Coast area. The action followed transfer of Western's Denver-Los Angeles route to United Air Lines on Sept. 15.

T. C. Drinkwater, WAL president, said the step was in furtherance of Western's announced policy to remain a regional carrier. He asked withdrawal of the following applications for new service: Phoenix to El Paso; Reno and Las Vegas to El Paso; Los Angeles to Honolulu; Salt Lake City to Fort Worth (Dallas) and extension to Chicago. Not withdrawn were bids for service between Great Falls, Mont., and Seattle; and between Yuma, Ariz., and Phoenix.

CAB SCHEDULE

Sept. 30. Oral Argument in Northeast Airlines mail rate case. (Dockets 1890 and 1932.)
Oct. 7. Hearing involving additional Florida area service. (Docket 1668 et al.)
Oct. 20. Hearing on additional service in California-Nevada area. (Docket 2019 et al.)
Oct. 20. Hearing on Resort Airlines' application to conduct all-expense "sky cruise" operations. (Docket 2377 et al.)
Oct. 20. Hearing on Pan American Airways' application for route consolidations and extensions in Latin America. (Docket 2811.)
Nov. 3. Hearing in Boston-Bermuda service case. (Docket 1650 et al.)

This type oil separator, combining high efficiency and low internal resistance, has been widely adopted, not only for military planes but on commercial ships as well.
We are able to make prompt deliveries on this oil separator in any desired quantities; or we shall be glad to quote on oil separators of other types or to your own design.
MERCURY AIRCRAFT, INC.
HAMMONDSPORT, N. Y.
MERCURY AIRCRAFT
PARTS
SURFACES
FUEL TANKS

Package of
PERMANENT PERFORMANCE

- Kester Cored Solders are scientifically manufactured to provide permanent, dependable results in every type of soldering operation. They equip your product with rugged staying power—protect against service difficulties.

- Kester Cored Solders are simply and easily applied. Self-contained fluxes are positive-acting and will not disintegrate or lose their fluxing power.

- Kester Rosin-Core Solder, for electrical work, contains a patented plastic rosin flux. Ideal material for clean, tight electrical connections, Kester Rosin-Core Solder will not cause corrosion or injure insulation.

- For general soldering, use Kester Acid-Core Solder to safeguard the equipment you build . . . with tight, trustworthy solder bonds.

- Kester engineers are at your service, to help you select the right solder, and the correct strand and core-size for every operation. Write them fully; there is no obligation.

KESTER SOLDER COMPANY
4206 Wrightwood Ave., Chicago 39, Illinois
Eastern Plant: Newark, N. J.
Canadian Plant: Brantford, Ont.

KESTER
Cored Solders
STANDARD FOR INDUSTRY

Slick-PAA Pact

Pan American Airways and Slick Airways have teamed up in an unprecedented interline freight arrangement which will integrate the former's world-wide routes with the latter's new scheduled domestic services. Slick, which obtained temporary common carrier rights last month, will now have added incentive to develop cargo business for foreign points. The San Antonio operator connects with Pan American at New York, Los Angeles, San Francisco and Houston.

Negotiating Conference Given CAB Approval

Terms of the agreements setting up the airlines negotiating conference to act as bargaining representative for 18 certificated carriers participating in the setup have been approved by CAB. At the same time the Board made clear that its action in no way constituted endorsement of industry-wide bargaining or approval of the conference as the proper bargaining representative in any specific negotiations with a labor organization.

The conference is designated as the exclusive representative of each member airline in negotiating collective bargaining agreements with the pilots, and, upon request, is empowered to act in like capacity in dealing with other employe groups. Governing body of the conference is a board of seven directors, six of whom must be officers of a rank not lower than vice president of a member carrier.

Approval of the agreements had been opposed by the Air Line Pilots Association and International Association of Machinists on the ground that the conference would be used by the companies to impose industry-wide or multi-carrier bargaining on employes. The unions also contended that under the agreements the airlines turned over to an organization which is composed of officers of other and often competing carriers the control of an important part of their business.

CAB said the agreements do not require industry-wide or multi-carrier bargaining and pointed out that industry-wide bargaining cannot be imposed by any part to a labor dispute without the consent of all parteis involved. The Board also pointed out that any carrier may resign from the conference if it believes its best interests are not being served by the organization.

European Service

Major European cities will be connected by overnight airmail and cargo services throughout the coming winter for the first time since the war, according to the International Air Transport Association.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • PLANES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE

60¢ a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

POSITIONS WANTED (full or part-time individual salaried employment only), ½ above rates.

PROPOSALS 75¢ a line an insertion.

INFORMATION

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE

The advertising rate is $9.00 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.

NEW ADVERTISEMENTS received Friday will appear in the issue dated second Monday following subject to limitation of space available A.W.

POSITION VACANT

AERONAUTICAL ENGINEERS: Structural Engineers, Aerodynamicists and Layout Engineers having at least four years aircraft experience in addition to college degrees are urgently needed by large eastern manufacturer. Consideration will also be given to aircraft engineers interested in all phases of design and test engineering. In letter of application please give detailed account of your aircraft experience as well as other pertinent data you feel will assist us in fully and promptly considering your application. All replies will be held strictly confidential. Apply Employment Manager, Fairchild Aircraft, Hagerstown, Maryland.

POSITIONS WANTED

YOUNG MAN 35 with long experience in testing, sales, fixed base and non-scheduled operations, desires position with permanent company in sales, promotional or management work. All replies answered. PW-2048, Aviation Week, 520 N. Michigan Ave., Chicago 11, Ill

AIRCRAFT SALES or administrative position; Experienced in export procedure; spanish; reassembly; demonstrating; flight testing; instructor; former Navy Lt. Comdr. Squadron C.O., B.S. Business administration, age 33, available immediately. Louis Tobias, 156 Kilburn Road South, Garden City, N. Y. Hempstead 2652R.

COMMERCIAL PILOT with single engine land and sea, multi engine land, flight instructor and instrument ratings. Total flight time 3200 hrs. on all types of aircraft, 1700 hours on 4 engine equipment in major airline service. Have aircraft sales experience. Single 28 years old, dependable, will go anywhere. Will furnish any additional information and answer all inquiries. PW-2101, Aviation Week, 330 W. 42nd St., New York 18, N. Y.

COMMERCIAL PILOT. College grad., age 31, single, free to travel, available immediately, rated for single and multi-engine, land and sea, instrument, flight instructor and ground instr. Flew Marine Corps transports in Pacific. U. S. airways and Alaska. 3200 hrs. in 7 years, no accidents. Now employed as flight instr. Will consider and reply to all offers. L. W. Jensen, 301 E. Franklin, Bend, Oregon.

BOOKS

Principles of High Speed Flight

Transonic and Supersonic Aerodynamics; Turboprop, Turbojet, Ramjet, and Rocket systems. Table of contents free on request. Southeastern Research Institute, Inc., 5009 Peachtree Rd., Atlanta, Ga.

FOR SALE

Lockheed Lodestar

Executive transportation for discriminating owners. Plane ready for your person interior arrangements. Trades considered. Matt Tainio, 1311 W. 157th St., Apt. C, Gardena, Calif. Phone Menlo 4-4474.

SCHOOLS

Rising Sun SCHOOL OF AERONAUTICS
ESTABLISHED 1930
"Built Upon the Success of It's Graduates"
GOVT. C.A.A. and VETERAN APPROVED
ENROLL NOW FOR NEXT CLASS
2206-16 E. HUNTINGTON ST., PHILA., PA.

Experienced **AERODYNAMICISTS**

The solution of today's complex aerodynamic problems demands all the resourcefulness and ingenuity of top-notch experienced Aerodynamicists.

CHANCE VOUGHT AIRCRAFT is seeking five such men

Our new starting salaries are particularly attractive. You are invited to apply in person or send a resume of your education anad experience to:

CHANCE VOUGHT AIRCRAFT
STRATFORD **CONNECTICUT**

Prompt consideration will be given all applicants.

EXECUTIVE AVAILABLE

I am interested in going to work for an organization that has an assignment for a man with the following qualifications:

- **Graduate engineer, electrical, formerly vice-president and chief engineer for nationally known electrical components manufacturer for a period of twelve years.**
- **Simultaneously organized and operated for the past fourteen years the largest fixed base aircraft service operation and shops in the Northeast United States, employing over 300 people.**
- **Can furnish excellent references attesting to outstanding ability as an organizer, promotional and sales. Very capable public speaker.**
- **Twenty years of thorough aviation experience and holds current ratings as Airline Transport Pilot, Multi-engine 220-3150 H.P., Commercial with single and multi-engine land and sea, instrument and instructor and all around instructor ratings.**
- **Age 44, married, excellent physical condition and ready for immediate assignment.**

PW-1969, Aviation Week
520 North Michigan Ave., Chicago 11, Ill.

BEECH HIVE

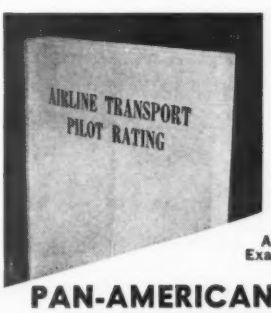
ATLANTIC's facilities were conceived specifically to serve corporation planes and discriminating owners. Little wonder that ATLANTIC is the New York home-away-from-home for Beechcrafts from all over the country. Beechcraft and Bendix Radio sales and service.

Atlantic Aviation CORPORATION
TETERBORO AIRPORT
TETERBORO, N. J.
PHONE: HASBROUCK HEIGHTS 8-1740

AIRPORT FLOOD LIGHTS

24" ribbed lens, cast aluminum shell, bronze trunnion assembly. Made for 3000 watt bayonet base bulb. Can be readily connected for lower wattage. Precision ground glass reflector. Crouse and Hinds and Westinghouse. Weight approx. 210 lbs. Original cost $350 each 150 units available. Our price—F.O.B. warehouse Hammond, Indiana $50.00 each net.

WARSHAWSKY & LAZAR
2126 So. Michigan Ave. Chicago 16, Illinois



FLIGHT ENGINEER by Charles A. Zweng. (Just Published) A basic text for Flight Engineer Rating. Covers Douglas, Boeing and Lockheed. Fully illustrated, graphs, etc. Typical "Multiple Choice Examinations" in the appendix. $4.00

AIRLINE TRANSPORT PILOT RATING (by Zweng). Covers all subjects on which the pilot is examined. Typical "multiple choice" and "map" examinations in the appendix. $4.00 (Revised Ed.)

FLIGHT INSTRUCTOR: A new Revised Ed. covering the scope of the written examination for flight instructor rating. New typical Multiple Choice questions with answers included. $4.00 postpaid or C.O.D.

AERONAUTICAL TRAINING by Zweng. (For Private and Commercial Pilots) includes new map problems and "Typical Multiple Choice Examinations", only $3.00.

A & E Mechanic manual by Zweng—new edition with "Multiple Choice Examinations" not found elsewhere, only $3.00 postpaid or C.O.D.

PAN-AMERICAN NAVIGATION SERVICE, Dept. A-3
12021 Ventura Blvd. • NORTH HOLLYWOOD, CALIF.

1830-92's

New 1830-65's Converted to 1830-92's.....$3,500.00
Newly Overhauled 1830-65's Converted to 1830-92's and Approved for Scheduled Operations.....$2,750.00
1830-92's Newly Overhauled by Army.....$1,900.00
1830-65's Newly Overhauled by Army, Converted to 1830-92's.....$1,750.00

Parts For R-2000-7's & R-1830-92's. All parts & Engines Packaged for Long Time Storage & Export.

MEMO: We are handling increasing quantities and types of engines and engine parts. Rapid inventory changes prevent keeping up with our stock in these ads. For your greatest advantage we strongly recommend that you

KEEP US INFORMED OF YOUR NEEDS

STEWARD-DAVIS COMPANY, 13501 S. Western Avenue, Gardena, Calif.

CABLE: STEDAV. Phone: Plymouth 5-5144 or MEnlo 4-4579

SEE US FOR SAE INSTRUMENTS APPROVED REPAIR STATION 188

NEW — USED — ALL TYPES — SALES — REPAIRS

STANDARD AIRCRAFT EQUIPMENT COMPANY

Hangar 35, Roosevelt Field, Mineola, L. I., N. Y. Garden City 8753

EXHAUST COLLECTOR RING ASSEMBLIES

DOUGLAS PART #5115224 (C-47) NEW

JOHN N. HOWARD

P. O. Box 956, Coral Gables, Fla.

---

aircraft tubing

MILLIONS OF FEET • CARBON & ALLOY

IMMEDIATE SHIPMENT AT BELOW MILL PRICES

Send us your specifications

WESTCHESTER TUBING CO. Inc. Phone: Mount Vernon 8-2263 P. O. Box 361, Mount Vernon, N. Y.

BG shielded, long reach, Aircraft Spark Plugs Type LS 465-A (same as LS-465) @ 30 cents each.
Also Aircraft Spark Plug Connectors
No. E2AC (Fiber) Mfg. Aero Spark Plug Co.
No. 1099 (Ceramic) Mfg. Auburn Spark Plug Co.
No. 1041 (Ceramic) Mfg. Auburn Spark Plug Co.
No. M531 (Ceramic) Mfg. BG Corp.
Price $15.00 per Thousand
Samples sent on request

ALLIED SALES

233 Mill Street, Cincinnati 3, Ohio

DC-3's—C-47's

Licensed. Ready to Go.

Cargo or Passenger. Good Selection. Many Spare Parts.

$20,000 —— $29,000

Available for Inspection at

CONKLIN AVIATION CORP.

Byrd Airport, Richmond, Va.

Tel. FAirfield-2851

New Hamilton Governors

Models: 1A2, 1A4, 1Q12, 4G8 4G10, 4K11 and many others. All packed in original factory cartons. Will ship on approval. Priced far below market. Wire for quotation.

Anderson Aircraft Co.

1700 Sawtelle Blvd.

Los Angeles 25, California

Now you can feature your business needs or "opportunities"

EVERY WEEK

for attention of more than 34,000 executives and key men who read

AVIATION WEEK

by inserting your advertisement here in

"SEARCHLIGHT"

Ads received one week appear in the issue mailed the next week.

Prompt ANSWERS to business problems . . .

The Searchlight Section brings business needs and "opportunities" to the attention of men associated in executive, management, sales and responsible technical engineering and operating capacities with the industries served by these McGraw-Hill publications. USE IT.

Classified Advertsing Division

McGraw-Hill Publishing Co.

330 W. 42 St. New York 18, N. Y.

Air Transport
American Machinist
Aviation Week
Business Week
Bus Transportation
Chemical Engineering
Coal Age
Construction Methods
Elec. Construction & Maintenance
Electrical Merch.
Electrical World
Electronics
Engineering & Mining Journal
E. & M. J. Metal & Mineral Markets
Engineering News-Record
Factory Mgt. & Maint.
Food Industries
Power
Product Engineering
Textile World
Welding Engineer

ADVERTISERS IN THIS ISSUE

AVIATION WEEK—SEPTEMBER 29, 1947

Darnell Corporation, Ltd..... 8
Agency—Henry L. Rhea Advtg. Service

General Electric Co. (Apparatus Dept.) 3rd Cover
Agency—G. M. Basford Co.

Kester Solder Co..... 30
Agency—Aubrey, Moore & Wallace, Inc.

Kidde & Co., Inc., Walter..... 3
Agency—Newell-Emmett Co.

Kollsman Instrument Corp..... 5
Agency—Erwin, Wasey & Co., Inc.

McGraw-Hill Book Co..... 33

Mercury Aircraft, Inc..... 29
Agency—Charles L. Rumrill & Co.

Potter, Inc., L..... 33

Searchlight Section 31, 32

Short Brothers, Ltd..... 26
Agency—J. Walter Thompson Co., Ltd.

Skymotive Aviation Management Corp..... 4
Agency—Swaney, Drake & Bement, Inc.

Texas Company, The..... 6
Agency—Buchanan & Co., Inc.

Timken Roller Bearing Co., The.....4th Cover
Agency—Batten, Barton, Durstine & Osborn, Inc.

United States Rubber Co.....2nd Cover
Agency—Campbell Ewald Co. of New York, Inc.

Wilson Co., The H. A..... 17
Agency—Charles Dallas Reach Co., Inc.

Wright Aeronautical Corp.....Front Cover
Agency—Charles Dallas Reach Co., Inc.

•

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT
Positions Vacant 31
Positions Wanted 31

EDUCATIONAL
Books 31
Schools 31

EQUIPMENT
(Used or Surplus New)
For Sale 31-32

Complete Aircraft Interior Design and Maintenance

Airline operators and private owners can find in our services a reasonable and highly satisfactory solution for their aircraft interior problems.

L. Potter is one of the industry's oldest firms specializing in custom design of aircraft seats, divans, desks, tables, etc. Many of the nations leading industrial concerns call on us not only for complete redesign of executive fleet interiors but for regular maintenance. If you have an aircraft interior job it will pay you to look first to Potter.

CAA APPROVED Seats For Sale

The newly approved S-11, S-23A, the P-2000 and P-2100 deluxe single and twin aircraft chairs can now be delivered on regular schedules. Already in use by many leading operators these modernly designed seats have brought new standards of comfort and reliability. Reasonably priced, inquiries invited.

L. POTTER, INC.

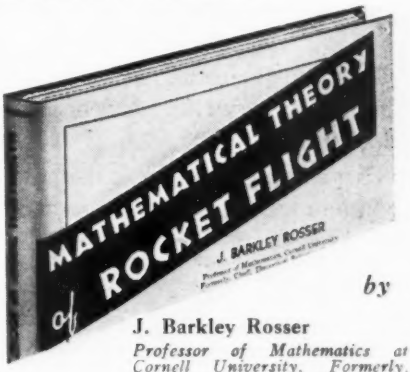
Aircraft Seats and Interiors

Hicksville 233-575 **Bethpage, Long Island**

Just Published!

new, vital data on ROCKET FLIGHT

Based on the war-time rocket experiments of the Office of Scientific Research and Development—brought to you in this concise and informative handbook.



by

J. Barkley Rosser
Professor of Mathematics at Cornell University. Formerly, Chief, Theoretical Ballistics Section, Allegany Ballistics Laboratory

Robert R. Newton
Member of Technical Staff, Bell Telephone Laboratories, Inc., Murray Hill, N. J. Formerly Research Associate, Allegany Ballistics Laboratory

George L. Gross
Research Engineer in Applied Mathematics Grumman Aircraft Engineering Corporation, Bethpage, N. Y. Formerly Research Associate, Allegany Ballistics Laboratory

6x9, 276 pages, 41 diagrams, $4.50

THIS up-to-date analysis authoritatively and clearly demonstrates the technical details of "what makes a rocket go." It is based on the official, final report of the Office of Scientific Research and Development concerning our vital research on rocket flight during the war years. Expanded and clarified, it serves both as a self-instruction text for readers unfamiliar with rocket advances, and as a handbook for use by the scientist actually involved in further rocket development. Complete with clear diagrams, tables, and graphs, this authoritative manual covers a multitude of points such as how the jet forces propel the rocket, how the rocket is rotated for stability, aerodynamic forces on a non-spinning rocket, effect of jet action, dispersion of a rocket, vacuum trajectory, launcher velocity, and tipping-off effects. For all scientifically-minded readers it is an illuminating glimpse of the progress made and future in rocket flight.

Five Comprehensive Chapters

1. **The Equations of Motion of a Rocket**
2. **Motion After Burning**
3. **Motion During Burning**
4. **Boundary Conditions**
5. **Properties of the Rocket Functions**

Examine this book 10 days FREE

McGraw-Hill Book Co.,
330 W. 42nd St., NYC 18

Send me Rosser, Newton and Gross's MATHEMATICAL THEORY OF ROCKET FLIGHT for 10 days' examination on approval. In 10 days I will send $4.50, plus few cents postage, or return book postpaid.

(We pay postage on cash orders)

Name .....
Address .....
City and State .....
Company .....
Position AW-9-29-47

(For Canadian price write McGraw-Hill Co. of Canada Ltd., 12 Richmond Street E., Toronto 1)

EDITORIAL

Cargo Rate War—Bad Medicine

How can the certificated airlines afford the 12 cents a ton mile cargo rate that four of them propose to put into effect next month?

Our editorial opinion is that they cannot. We have found no responsible air transport executive who believes they can.

From VJ Day until recently the certificated airlines sagely kept their peace on this matter of competition from independent cargo and charter carriers conducted by ex-GI's with surplus equipment. For a time there were hundreds of them. There was every reason, from a dollars and cents standpoint, why the old-line carriers were justified in going into the public prints about unfair competition.

But they gauged the public opinion wisely and kept mum. The majority of the independents folded under their own merciless competition. There are few left. But these few have proved their ability to operate with low rates. This has alarmed some of the major carriers, and they have launched a bitter campaign which appears to be designed to eliminate the independents as soon as possible.

Early in July, Slick Airways—largest of the independent cargo operators—filed a tariff with CAB setting an average airfreight rate of 12¾ cents a ton mile, to be effective Aug. 1. A few weeks later, 19 certificated airlines cut rates 25 percent, effective Aug. 1, so that their charges now range from 14 to 21 cents. Other uncertificated all-cargo lines retaliated with tariffs averaging about 12 cents a ton mile. For a time this appeared to be the basis on which competition between the certificated and uncertificated lines would be carried on during the foreseeable future.

Now, however, American, United, Western and PCA have filed tariffs with the CAB which, effective next month, would go as low as 12 cents, undercutting all the major uncertificated carriers on shipments below 1,000 pounds.

Earl Slick, president of Slick Airways and head of the Independent Airfreight Association, told President Truman's Air Policy Commission that he doubts if any of the independents can last another six months if the newest rates filed by the four airlines are allowed to go into effect.

This is good, in the opinion of those who feel the long-established airlines should have no competition but their own. Granted, that is increasing steadily.

But we feel it is not good for the few remaining independents, operating without government income, to be throttled.

How can the airlines, which charge an equivalent of 50 cents a ton mile for passengers charge 12 cents a ton mile for freight? The airlines receive from the government from 45 cents to $5 a ton mile for mail, which requires no sales or solicitation expense. Yet almost all are seeking higher mail rates.

Moreover, one airline, Northwest, has filed to increase its one-way passenger fares 10 percent, and others may follow suit.

If this drastic cut in freight rates will make money for the airlines, then we have no objection. The public will be receiving better service at less cost, and cargo profits would lead to further public savings in lower mail rates.

But the matter appears to be a rate war on the independent airlines, financed to considerable extent by government mail pay which the uncertificated carriers do not enjoy, and conducted at a time when the Post Office and passengers are being approached for higher rates.

The airlines of this country have no stronger defender than Aviation Week. But it appears to us that a segment of the established industry has made an unfortunate and costly error in strategy in its war against competition. The timing could hardly have been worse. The industry needs all of the friends it can summon to its aid.

The result at this point seems almost certain to be a change in attitude not only in public opinion but in government agencies which control the destiny of the industry. Although only four lines have initiated a drastic and seemingly unjustifiable campaign against the independents,—which they can hardly afford to carry out indefinitely—the whole air transport industry may suffer. This change toward the industry is already apparent in a few places in official Washington. It is ominous.

ROBERT H. WOOD

General Electric *Announces*

TO assist you in the planning, installation, and maintenance of airport lighting, General Electric offers you a new, unique service—a complete airport lighting service designed to save you engineering time and upkeep expense. It includes:

Complete Line of Equipment

General Electric can supply all fixtures, lights, cable, transformers, control, and protective equipment required for the complete lighting of approaches, runways, obstacles, wind direction indicators. This includes fixtures of the well-known American Gas Accumulator Company. Purchase of equipment from General Electric assures you of coordinated equipment, properly scheduled shipments, and unit responsibility for equipment performance.

Complete Engineering Service

General Electric engineers, thoroughly familiar with airport-lighting requirements and all regulations concerning such lighting, will work with your consulting engineers or contractors in preparing a complete layout covering all lighting requirements, and in compiling complete specifications and bills of material.

Complete Sales Service

Specialists in airport-lighting equipment are now located at most General Electric district offices; complete sales service is available through any apparatus office of the Company.

Complete Repair Service

Within 24 hours travel time from any location in the United States, there is a General Electric service shop which has complete facilities for performing minor or comprehensive repairs and for complete rehabilitation of all airport-lighting equipment, including transformers, control, and protective equipment.

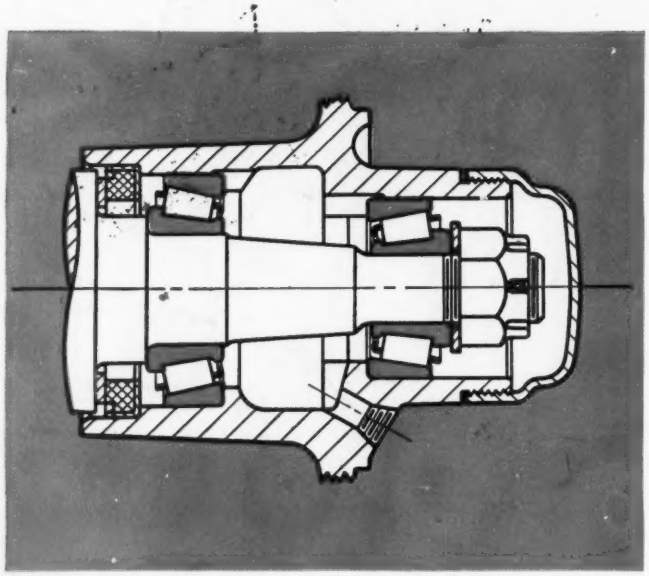
For complete airport-lighting service or for assistance in the engineering or supply of airport lighting equipment, get in touch with the nearest G-E Apparatus Office or write *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

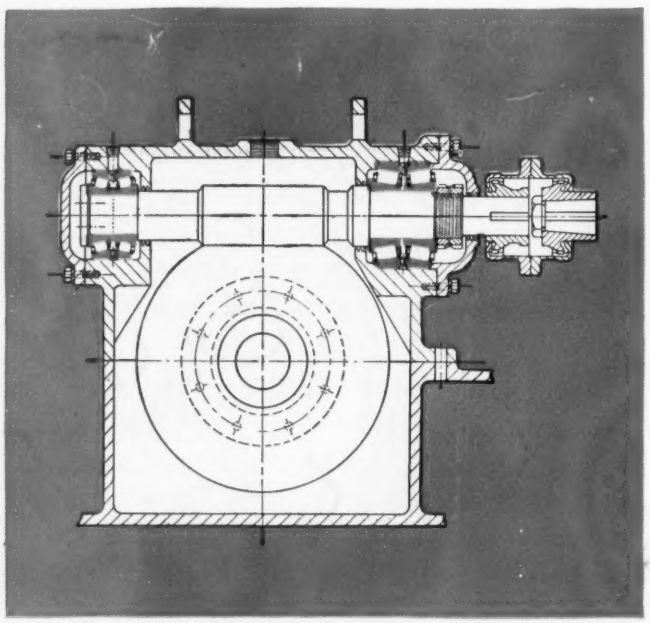
455-1

DETROIT PUB LIBRARY
TECHNOLOGY DPT
96 PUTNAM AV
DETROIT MICH

...o carry combinations of radial and thrust loads



TRACTOR FRONT WHEEL *in which both thrust and radial loads are carried on single row Timken bearings. From whichever way the load may come, it will be handled with minimum friction and wear.*



APPLICATION *of Timken Bearings on the worm shaft of a worm gear drive. The load on the worm shaft bearings, due to the operation of the worm, is primarily thrust. There is considerable radial load however, arising from the separating force of the gears and also possibly from overhung driving loads. This is another application for which the tapered roller bearing is ideal.*

THESE drawings show how Timken tapered roller bearings are effectively used where both radial and thrust loads must be carried. They may give you an idea for projects now on your boards.

Because it is a *roller* bearing, the Timken bearing can carry the heaviest loads. Because its rolls are *tapered,* it can carry both radial and thrust loads in any combination.

From whichever direction the loads may come, this tapered design enables the Timken bearing to carry them, one at a time or simultaneously. The cost of providing a separate type of bearing for each load is eliminated. Bearing housings and mountings are simplified, with a saving in cost, weight, and space.

For help in putting these important advantages of Timken bearings to work in the product you're designing, call upon the confidential service of the Timken engineer. He will help you select the precisely correct bearing for your job.

Remember, Timken is the only bearing manufacturer which makes its own steel. And Timken is the acknowledged leader in: **1.** advanced design; **2.** precision manufacture; **3.** rigid quality control; **4.** special analysis steels.

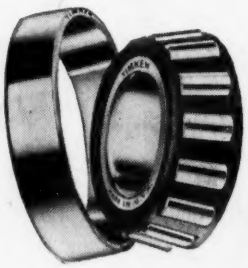
Additional copies of this page and further information on this or other applications of Timken bearings are yours for the asking. Write — The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN GIVES YOU THESE IMPORTANT FEATURES:

1. TRUE ROLLING MOTION
All lines drawn coincident with the faces of rollers, cone and cup meet at a common point on the axis of the bearing.

2. GREATER LOAD CAPACITY
Load is distributed along full length of roller, giving greater capacity, precision, and rigidity, with less wear and distortion.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◎ AND THRUST →◎← LOADS OR ANY COMBINATION →✳←